MEDICAL REPOSITORY.

VOL. V.—No. I.

ARTICLE I.

CASE *of* HYDROPHOBIA: *Communicated by Dr.* PHILIP SYNG PHYSICK, *of Philadelphia, to Dr.* MILLER.

ON the 28th of April, 1801, I was desired to visit Samuel York, a black boy, sixteen years of age, servant to Mr. George Thompson.—The account I received of his illness was, that the day before, towards evening, he complained of not feeling well; in consequence of which he took a draught of chamomile tea, and went to bed. Next morning he awoke in a considerable perspiration, and being thirsty, he rose earlier than usual, and went down stairs for a drink of water, but, in attempting to swallow it, his head was involuntarily thrown back from the cup: after this, he returned to bed, and his breakfast was sent to him, but he refused to take any. His mistress prepared some sage tea, and intreated him to drink some of it: his answer was, that, to oblige her, he would take one tea-spoonful; and this, with great difficulty, he accomplished. In the course of the day he was persuaded to take four or five tea spoonfuls more into his mouth, most of which he was unable to swallow.

My first visit to him was at about half past eight in the evening of the second day of his disease. I found him uneasy and restless, throwing himself about in every direction, and talking incessantly. On being asked what was the matter, he complained of his throat, of a burning sensation in his stomach, and said he was thirsty; he thought he could drink a gallon of water, but that whenever he attempted to swallow, he felt a pain in his throat, "that seemed as if it would take his breath away."

Not suspecting the nature of his complaint at first, I examined his throat, supposing I should find it considerably in-

flamed; he objected strongly to this examination, and would scarcely allow the handle of a spoon to enter his mouth, to hold down his tongue. With some difficulty I obtained a view of his fauces, and found them entirely free from inflammation. I now offered him some water in a glass. He took it into his hand, but as soon as it was within a foot of his mouth, jerked back his head convulsively, and his countenance expressed marks of great horror. Notwithstanding this, he was prevailed upon to repeat the attempt, which produced similar effects. He now desired a lime to be brought him; the juice of which he squeezed into a spoon, and sipped down, with great difficulty, a small quantity of it.

His pulse was full, hard, and preternaturally frequent—his skin hot and dry—bowels had not been opened for two days—℥ xvj. of blood were taken from his arm, and an antimonial emetic ordered. The small quantity of it which he was able to take, vomited him once, and procured two stools.

Third day (29th April), 9 A. M. Has passed a very restless, uneasy night, without any sleep. All his symptoms continue, and his dread of water seems augmented. Some milk was offered him, which was equally offensive: indeed, he appears much distressed when any thing whatever is suddenly presented to him. In taking out my handkerchief, it happened to fly before his face, and this produced the same convulsive motion of his neck and throat as the sight of water. He objected to having the window open, on account of a stream of air which rendered him uneasy.

Sixteen ounces of blood were taken from his arm. About one o'clock, he was visited by Dr. Rush, and he directed him to be bled again. At this bleeding he lost ℥ xiv.— ℥ ij. of strong mercurial ointment were rubbed upon his skin, and four grains of calomel, in pills, ordered, which, however, he was unable to take.

At 4 P. M. I invited Doctors Mease and De Wees to see him with me:—His pulse now intermitted irregularly, and was tense. At this time ℥ xx. more blood were drawn; by which the force of his pulse was considerably reduced, and it was made very frequent. His stomach became sick, and he called for something to puke in: the nurse carried a chamber-pot suddenly before his face, which caused him to start back as if gasping for breath; he knocked it out of her hand with great violence, and broke it to pieces against the opposite wall of the room. He spits very frequently a small quantity of thick white saliva—he was persuaded to attempt to swallow

it, but this occasioned him a return of the spasms—has had one watery stool to-day.

Nine o'clock, P. M. It has been ascertained beyond a doubt, that this boy was bitten in the foot by a mad dog about five weeks since; the dog bit also a maid servant the same morning, and snapped at a third. The uneasiness of my patient to-night is as great as ever, though he has been able to take several tea-spoonfuls of water—not, however, without having the spasms excited each time: says he is better—pulse very frequent and tense. Several medical gentlemen visited him this evening: he complained of great uneasiness from having six persons at once in his room—was bled ℥ xii.—after which he became fainty, and spat up much frothy, viscid saliva, which appeared almost to choak him. He now insisted on getting out of bed.

It was intended to apply sinapisms to his throat and legs; and blisters to his thighs; but, before they could be prepared, he died suddenly at 10 o'clock, as if suffocated.

Next morning (30th), at 10 o'clock, leave was obtained to open the body. The pharynx, larynx, and trachea were first examined. They appeared in a natural state, quite free from inflammation. On the inside of the trachea, one part appeared rather more red than the rest. The abdomen was next opened; externally the viscera of a natural appearance—the stomach considerably distended with air; when cut open, was found nearly empty. Some small specks of a brownish coloured mucus adhered to its inner surface, at the great curvature, near the pylorus. On removing this mucus, the villous membrane under it exhibited a very faint red colour, hardly amounting to inflammation. The gall-bladder contained natural bile.

In the thorax were observed no marks of disease. The lungs were found free from adhesions, and in every respect perfectly natural.

Reflecting on the symptoms which took place in the case above related, it appeared to me, that the dread of water arose chiefly from the convulsive or spasmodic contraction of the muscles of the glottis, which rendered the patient unable to breathe, and involved him in all the horror of impending suffocation. When asked why he could not drink, he answered, that whenever he attempted to swallow any thing, it "took his breath away."

Perhaps the reason why swallowing liquids is more difficult to such patients than swallowing solids, is, that in the former case the glottis must be completely closed by the action of its

muscles, whereas, in swallowing solids, the epiglottis is pushed down mechanically, so as to cover that aperture as much as is necessary, and, of course, little, if any muscular action is requisite. Now, in this disease, whatever occasions the muscles of the glottis to contract, will excite spasmodic action in them, owing to their diseased disposition, and hence a danger of suffocation is experienced, which eventually takes place from this cause.

The black boy, whose case I have related, was unable to swallow his saliva without having the spasms excited, which induced him to spit it out continually. To this constant spitting I attribute the burning sensation, which he felt at an early period of his disease; and I have myself experienced it from a similar cause.*

Will not this circumstance, together with the irritation which excessive thirst must occasion in the stomach, sufficiently account for the slight inflammation observed in this organ on dissection? We know, that in animals, starved to death, the stomach is found much inflamed, and it must be remembered, that want of drink is far more intolerable than want of food.

Under the influence of these opinions, I am disposed to believe, that *Tracheotomy* would have saved my patient, at least for a time, if it had not altogether prevented the fatal termination of the disease. Probably, had this operation been performed, he would have been able to swallow drink and medicine; because there was no action in the pharynx or œsophagus preventing deglutition, when the patient could summon resolution sufficient to attempt it.

I cannot suppose that the spasms of the muscles in hydrophobia would be attended with much danger to life, were it not for their influence in suspending respiration; because we see, occasionally, more muscles in other parts of the body affected with spasm, without any risk whatever being incurred by the patient, even though they may continue many days. It is possible, however, that the inflammation of the stomach, excited by excessive thirst, may also be a cause of death. Cases are recorded of persons afflicted with hydropho-

* In the year 1798, when at the City Hospital, being apprehensive of inconvenience from swallowing my saliva (supposing it to be contaminated with the nauseous effluvia of the sick), I made it a constant practice to spit it out—in consequence of which, I was distressed with a burning sensation in my stomach, that forced me to desist from this practice to procure relief. Of this I made several experiments, so as to ascertain it beyond a doubt; and my friend and colleague, Dr. Cooper, experienced the same.

bia for several days, who, some short time before death, were able to drink freely—probably such persons, after the cessation of the spasms, die of inflammation of the stomach.

After tracheotomy has been performed, it is likely that bleeding, blisters, and mercury, would answer the purpose of removing spasms, or any inflammation which may have taken place.

ARTICLE II.

An ACCOUNT *of the* SALUTARY EFFECTS *of a* SALIVATION, *and also of* TONIC REMEDIES, *in* PULMONARY CONSUMPTION: *In three Letters to Dr.* EDWARD MILLER. *By* BENJAMIN RUSH, *M. D. Professor of the Institutes of Medicine and of Clinical Practice in the University of Pennsylvania, &c. &c.*

LETTER I.

DEAR SIR,

ON the 17th of December, 1800, William Kairns, a sailor, aged about 26 years, was admitted into the Pennsylvania Hospital, in the second stage of Pulmonary Consumption. Several of this man's relations had died of that disease. As his pulse was active, I ordered eight ounces of blood to be drawn from his arm the day but one after his admission, and the same quantity to be taken five days afterwards. I directed him to live chiefly upon milk and vegetables, and to take a medicine, known in our hospital by the name of "Antimonial Powder," composed of fifteen grains of nitre, a sixth part of a grain of tartarized antimony, and half a grain of calomel, three times a day. Contrary to my intentions, sixteen doses of this powder brought on a salivation, the effects of which were as unexpected as they were agreeable. It suddenly put a stop to his cough, and removed every other symptom of his pulmonary disease. The salivation continued, without any additional doses of calomel, for ten days. I looked with a good deal of apprehension for a return of his consumptive symptoms after the spitting had ceased, but happily without finding them. In a week after his mouth and throat recovered from the mercurial disease; and he earnestly solicited his discharge, as a vessel was about to sail from our port, in which he was anxious to enter as a sailor. He was accordingly discharged, as cured, on the 10th of January, 1801.

On the 17th of January, 1801, William Poole, aged twenty-three years, formerly a merchant's clerk, was admitted into our hospital, in the third, or apparently the last stage of the disease which has been mentioned. His cough was distressing, especially in the nights. He was much emaciated, and had frequent chills, with constant sweats: his pulse forbad bleeding. Encouraged by the accidental cure just related, I prescribed for him the antimonial powder, and ordered mercurial ointment to be applied to his sides and breast, in order to excite a salivation. In a few days I was highly gratified, by hearing him complain of swelled gums, and great pains in his teeth. From this time, his cough, fever, chills and sweats left him. To obviate the weakness and want of appetite induced by his disease, I ordered him to take an infusion of columbo root, with elixir of vitriol, and to drink freely of wine and porter with his aliment, which I directed to be of a cordial nature, and from which he found great benefit. The salivary glands were not affected by the mercury in this patient; an effect of it which experience has taught me not to be essential in all cases to its salutary operation, in abstracting disease from internal and vital parts of the body. After this man recovered from his pulmonary symptoms, he was attacked by an obstinate and distressing rheumatism in one of his legs, which yielded to blisters, and the usual remedies for that form of disease. He was discharged, cured, on the second of last May.

It was not in the winter 1801 that I first combated pulmonary consumption with mercury. I had frequently, many years ago, attempted to cure it by a salivation, but without being able to excite it. The late Dr. Thomas Bond, of this city, I have been informed, was equally unsuccessful with myself, in his attempts to cure this disease by the same revolutionary remedy. The knowledge that has been acquired by the more extensive and familiar use of mercury since our first pestilential year, 1793, has, I hope, taught me the cause of our failures. It was probably given before the morbid action of the blood-vessels was reduced by blood-letting and low diet; or, 2dly. After the suppurative action in the lungs was so far advanced, as to prevent the action of the mercury predominating over it. Mr. Bogue takes notice of the failure of mercury to excite a salivation in the diseases of the liver from the same cause. Perhaps a third cause of our want of success may be derived from our having given the mercury, after all the excitability of the system (on which medicines act) had been wholly expended; or, 4thly, from our not giving it with some

other medicine, calculated, by its previous or accompanying stimulus, to prepare the system for its impression upon the mouth or salivary glands; or, lastly, from our not giving it in a form, as in the antimonial powder, in which it is diffused through the mouth in the act of swallowing it.

I have said nothing of the state of the lungs in the above patients, previous to the healthy and happy change induced in them by the salivation. It is probable they were affected with tubercles or ulcers; both of which, I believe, have been cured by other remedies besides mercury; but if those consequences of pulmonary consumption did not exist, such a preternatural secretion and excretion of morbid matter had taken place in the lungs, as would have produced death as certainly as tubercles or ulcers when not opposed by medicine.

It is remarkable, that we have limited a salivation to an inflammation of the liver, as improperly as we have limited blood-letting to a pain in the side. There is no more reason why the former should not be prescribed as generally in diseases of all the internal and vital organs, than that the latter should not be used in diseases of great morbid action in every part of the body.

The success of this new mode of attacking pulmonary consumption will depend very much upon the *time* and *manner* of applying it. How *long*, and how *often* have blood-letting, bark, opium, and blisters deceived us in the most simple cases, by our not regulating our prescriptions of them by the stage of the diseases in which they were indicated, or by the varying states of the system? It is from ignorance, or inattention to these two circumstances, that we so often see such different issues of diseases from the use of the same remedies in the hands of different physicians.

I have only to add to my letter, that a patient should not be considered as safe or free from danger, after the removal of the cough, fever, and other symptoms of consumption, by means of a salivation. The general weakness which predisposed to it, should be obviated by journies, sea voyages, a long course of tonics, and a total abstraction of all its remote and exciting causes.

From, dear Sir, your sincere friend,

BENJAMIN RUSH.

Philadelphia, March 18, 1801.

LETTER II.

DEAR SIR,

SOON after writing the above letter, an event occurred which made it necessary for me to delay sending it. William Kairns (whose case I have related), in his passage down the Delaware, in the month of February, caught a severe cold, from being detained several weeks by the ice. He was sent back to our hospital on the second of March, where he died on the 29th of April following. Dr. Parke, who succeeded me in attending the hospital, politely attempted to relieve him at my request by a salivation, but without success. If the death of this man should lead physicians to be more careful in enjoining their patients, after the cure of a pulmonary affection, to obviate the return of it, by avoiding all the remote and exciting causes of a relapse, and to use such remedies as are best calculated to remove the remaining debility of the system, it will not have occurred in vain. I have lately seen *Poole*, and was delighted to find him in good health, and fine spirits. He had gained not only flesh, but fat.

Within the course of the present month, I have arrested this formidable disease, by gently touching the mouth with calomel, in two young ladies in our city, who were affected with alarming catarrhs, which had supervened previous debility of a long standing. They are both now riding in the country, by my advice, in order to remove the debility from their systems, which was the forerunner of their disease.

Dr. Stewart, an intelligent young physician of this city, has lately put into my hands, the history of a case of a Mrs. Cornvil, a woman of five and twenty years of age, whom he had cured in the spring of 1799, of a confirmed pulmonary consumption, by means of a salivation of five weeks continuance. The salivation, he remarks, was sometimes interrupted by a diarrhœa, and by great morbid excitement in the blood vessels, but was always restored by checking the former, by means of laudanum, and reducing the latter, by means of blood-letting. The Doctor concludes his letter, which is dated May 12th of the present year, by saying, "Mrs. Cornvil is now free of all pulmonary complaints, and has (since her cure) become the mother of a fine healthy child." Dr. Physick informs me, he has salivated two patients in consumptions, with success, and has hopes of curing a third, now under his care, by the same remedy. Thus have we made one more impression upon a most formidable and distressing disease. Let us

not despair; and when we speak of an incurable disease, let us always remember, that we only express the imperfection of our knowledge in medicine.

From, dear Sir, your friend,

BENJAMIN RUSH.

Philadelphia, May 20, 1801.

LETTER III.

DEAR SIR;

IN my last letters, I mentioned the effects of a salivation in pulmonary consumption. The subject of the present letter shall be, the effects of tonic remedies in that stage of consumption which forbids the use of depleting remedies, and in which mercury is ineffectual, from the exhausted state of the excitability of the system.

In the month of December, 1800, Benjamin Parker, aged twenty-six years, was admitted into the Pennsylvania Hospital, in the last stage of pulmonary consumption. He was unable to sit up in his bed. His expectoration was copious and purulent, and his pulse weak and frequent. Without any expectation of curing him, I prescribed a cordial stimulating diet, brandy toddy, liquid laudanum in small doses during the day, and from two to four grains of solid opium every night at bed time, and all chiefly with a view of smoothing his passage out of life. In my visits to the hospital after this prescription, I frequently passed his bed, without giving him the trouble of offering me his pulse. In the course of two weeks, Mr. Huchinson, one of the apothecaries of the hospital, informed me, with a smile, that Parker was much better. From this time I became more attentive to him, and had the pleasure of finding his countenance and pulse improving, and his cough lessening every day. By persevering in the use of the above remedies for six weeks, he recovered his strength and flesh, and was discharged on the 28th of February, without a single symptom of pulmonary consumption. This man had been a private patient of Dr. Caldwell before he was sent to our hospital. After his recovery, I asked the Doctor how long he thought he would live after he ceased to attend him? He replied, "not more than two weeks." I should have hesitated in communicating this case to you, had not every circumstance that has been related been witnessed by upwards of a hundred students of medicine who attended the practice of the hospital during the last winter. However extraordinary this cure may appear,

it was not the first time I had seen similar good effects from tonic diet and medicines. I prescribed them for a sailor of the name of Prichard, in the spring of the year 1776, at his own house, and left him afterwards, expecting he would live but a few weeks. In a few months I saw him seated on the bench of one of the gondolas, which were employed to defend Philadelphia in the revolutionary war. We recollected each other. He informed me that he ate his allowance, did his duty as a gondolier, and slept every night in the open air upon a blanket under his bench. I saw him a year afterwards in the street in good health. Perhaps his exercise in rowing for several months on board the gondola, contributed to render his cure more complete.

If these two cases stood alone in the history of chronic diseases, they would be sufficient to teach us, never to abandon patients in cases apparently the most hopeless, without a parting effort to relieve them. They show further, that the remedies which are calculated to lessen the pains which sometimes accompany the passage out of life, generally give the patient the best chance of recovery.

From, dear Sir, your friend,
BENJAMIN RUSH.

Philadelphia, June 19, 1801.

ARTICLE III.

TRIALS *with* NITRIC ACID *in* VENEREAL DISORDERS, *in which its Value therein is attempted to be ascertained: In a Letter from* JOHN R. B. RODGERS, M. D. *and Professor of Midwifery and Clinical Medicine in Columbia College, to Dr.* MITCHILL, *dated New-York, April* 8, 1801.

DEAR SIR,

WHEN I first heard of Nitric Acid having been used for the cure of Syphilis in Great-Britain, I determined to try it in the New-York Hospital, and in my private practice. During my attendance on the Hospital in the winter months, from December 1797, to this spring, and elsewhere, I have directed it in a great variety of syphilitic and other cases. I generally began with fifty drops in a pint of water, with one ounce of syrup, to be

taken in a day. This dose was increased to ʒ iss. and very often to ʒ ij. and more, in a day. Of the several cases I shall particularize but a few. In one syphilitic patient in the New-York Hospital, of recent infection, the præputium penis had an ulcer on its upper edge, of the size of a small sixpence; it was of sordid appearance—he had not taken any medicine for his complaint. The nitric acid was used in the dose of a drachm a day for four days, and then gradually increased to ʒ ij. and continued at this latter dose for five or six days. The ulcer was treated only with common and mild dressings, to determine more precisely the effect of the internal remedy on the ulcer. The sore extended itself daily, and, by the end of the first week, it had covered nearly one half of the prepuce. It was now judged necessary to apply something to arrest this ulceration. The phagedænic wash of the house was used, and the progress of the ulcer only impeded, but not completely stopped. After using the nitric acid for fourteen days from its first exhibition without effect, the patient was put on the use of the muriate of mercury, with a small quantity of opium, and the compound decoction of the woods. In five days after the commencement of this course, he was manifestly better, and in a month he was discharged, cured. This patient was of a sanguine temperament. A man, who lay in the next bed to the one we have just mentioned, had been long in the use of mercury—he had been terribly afflicted with syphilis—had a large open ulcer in his groin, from a buboe, and several ulcerations in different parts of his body—had been salivated before his coming to the hospital—was languid and relaxed, and had a pallid countenance. I continued his use of mercury and opium some days, but his sores did not show any tendency to heal, and he was evidently growing worse. I then put him on the use of nitric acid, and, in a week's time, his general health was much advanced, his countenance was more florid and animated, his muscles, which before were flabby and relaxed, became braced and firm; his ulcers and foulness of the skin were much diminished, and in a few weeks he was cured.—I should remark, that before we began the use of nitric acid, we suffered him to be four days without any medicine but his anodyne; and that, although he had not shown any symptoms of ptyalism before, or at the time of beginning the use of the acid, yet, in five days after we entered on its use, his mouth was very sore, and he spat freely. In several cases where there were ulcers of long continuance, blotches on the skin, and extensive herpetic affections, with pains increased when warm in bed, and

where mercury had been before given with little or no advantage, the nitric acid was administered with the best and happiest effect; but in many cases of recent syphilis (and several of them occurring this last winter), and chiefly in young and hearty men, the nitric acid, though given in different doses, and persevered in a considerable time, did not produce any good effect; and in the same patients, the use of mercury, with our usual accompanying remedies, readily accomplished a cure.

Having seen, in the London Medical and Physical Journal of May last, an account of nitric acid and opium being successfully used in a case of dysentery, I tried it the last winter on a man just come from the State Prison, after a confinement of more than three years, and who had been nearly all that time sick—he came in with diarrhœa of long standing, extremely emaciated and reduced in strength—abdomen much enlarged and tense, and evidently containing fluid—he had great thirst. The nitric acid and opium, as recommended by Mr. Hope, were administered, but with an increase of opium, according to the following prescription: viz. ℞. Gum. op. gr. iv. acid. nitric. ʒ ij.—Aq. fontan. ℥ iv.—capt. cochl. mag. 1. 4ta quaq. hora—He took, at the same time, wine, and had his abdomen frequently rubbed with warm oil. After a few days he passed urine profusely, and the swelling of his body was entirely removed, so as to permit one to feel his spleen and liver very distinctly and much enlarged—the thirst was but little relieved—his diarrhœa was, for a short time, checked—it, however, soon returned, and he died. This prescription of Mr. Hope promises to be of service in old diarrhœas of hot climates, and in long protracted dysentery. I had used nitric acid as an auxiliary to digitalis before I saw an account of its being applied to that purpose in one of the Medical Journals. It was in the case of a young lady who had taken digitalis so as to affect her pulse very sensibly, and to induce a vertiginous affection of the head. She was languid, and her countenance pale, and her lips less red than usual. She had become disoxygenated. Nitric acid was given, and with advantage.

From what I have stated above, and from what I have witnessed in other cases, I am induced to believe, 1. *That nitric acid is not to be relied on as an anti-syphilitic remedy, especially in recent cases, and where the patient is of the sanguine temperament; but that it is of the greatest service in all debilitated and disoxygenated constitutions, where, from the long use of mercury, the system has taken on the habit of great*

irritability, and where the patient may be said to be MERCURIALIZED. 2. Where there have been congestions in any part of the glandular system previous to the body being affected with syphilis, or where there is any tendency to scrophula, and where the disease has affected the skin. 3. In all herpetic complaints, syphilitic or otherwise; and in all cutaneous diseases where the skin is in a state of indirect debility, as in inveterate psora, or after small-pox, measles, or scarlatina, it is of service. 4. In ulcers and complaints of the throat of long continuance. 5. It is extremely well adapted to that state of languor and debility which patients are in returning from southern climates, and who have felt the effects of tropical fevers, of dysentery, and of long voyages. 6. In all those who have diseased livers and anasarca, either separate or combined, it is an excellent remedy. 7. It is also a good remedy in chlorosis. 8. From a case above cited, it is with opium a diuretic. Lastly. It does not appear to exert its good effects where the system is in much tone, or where that disposition obtains which is called inflammatory; but where the body generally, or a particular part, has been much debilitated by the long exertion of disease or influence of medicines.

I am, with much esteem,
Yours sincerely,
J. R. B. RODGERS.

ARTICLE IV.

A CASE *of* PULMONARY CONSUMPTION *cured by the Use of the* DIGITALIS PURPUREA: *In a Letter from* JOHN SPENCE, *M. D. of Dumfries (Virg.), to Dr.* MITCHILL, *dated January* 26, 1801.

June 18, 1800.

JAMES DRINAN, aged 31, a man of low stature, of a pale complexion, with a narrow chest, and dark coloured hair, and by trade a shoemaker, labours under a severe cough, attended with a copious expectoration of gross, yellow-coloured matter, which smells very offensively. The cough attacks him frequently during the day, but is most troublesome during the night, and in the mornings: feels little pain in his breast or side except when he coughs: observes, when seized

with a violent fit of coughing, that the matter he expectorates towards the close of the fit is tinged with blood, and tastes saltish: says he can distinctly trace the matter coming up from the short ribs on the right side: complains of being frequently very chilly, particularly in the evenings; and the chilliness he experiences has been so remarkable, that a few days ago, when Fahrenheit's thermometer stood nearly as high as 90 in the shade, he was obliged to cover himself with a blanket. These chills are succeeded by a high fever and profuse sweats. His appetite is bad, tongue foul, pulse hard and strong, and varies from 80 to 100 strokes, and upwards, in the minute: urine high-coloured: is of a very costive habit.

About the beginning of last month he was attacked with a pain in his right side, difficult breathing, and a very troublesome cough. For these complaints he was bled and blistered twice—took cooling purges—James' fever powders—and, in every respect, pursued attentively the antiphlogistic course. All his symptoms were thereby relieved, excepting his cough, which was harassing. About the first of June he suddenly expectorated a great deal of matter, the odour of which was excessively disagreeable, insomuch that scarcely any person could stay in the room with him. On the tenth of the same month all his symptoms became worse, accompanied with rigours, which were followed by fever and wasting sweats.—All this time he adhered rigidly to a low diet, living almost entirely on strawberries and milk, and rode out every day. When he rode he did not suffer his horse to go out of a walk or pace. He likewise, by the advice of a neighbour, drank a great deal of *horehound tea.* Notwithstanding, however, all his care, debility and emaciation of body became daily more alarming; and so restless were his nights, and so distressing his cough, that he was obliged to have recourse to opiates in large doses. From these circumstances, as well as from his profuse sweats and great expectoration, he was so convinced that his dissolution was rapidly approaching, that he deliberately settled his affairs; and he was the more disposed to give into this persuasion, as most of his relations had gone off, he said, in the same way.

He has resided several years in Dumfries (Virginia), and conducted himself with great sobriety and industry. He has generally enjoyed good health, except that he has frequently been attacked with slight catarrhal affections; and then his cough, though troublesome, was never dangerous.—Although a shoemaker by trade, he has not, for many years,

been engaged in the laborious part of that business; having a shop of his own, with a great number of journeymen, for whom his sole employment is to cut out work.

To-day I advised him to try the digitalis. He very cheerfully embraced my proposal.

I directed him to begin with thirty drops of the saturated tincture in a wine-glassful of mint tea, and to repeat this dose every forenoon and afternoon. At the same time I directed him to ride out every morning if able, and still to adhere to the antiphlogistic regimen. He was likewise directed to keep his bowels open by means of aloetic pills.

Friday, June 20th.—He took his medicine yesterday as directed. No nausea excited by it, nor any change in his pulse.

To-day he took forty drops of the tincture, and soon after rode out, when, unfortunately, his horse ran off, and threw him; in consequence of which he has been attacked with very sharp pains in his side, and a severe spitting of blood, for which he has been copiously bled.

Saturday, 21st.—He has had a bad night: has expectorated a great deal of blood during the night; and this morning, he says, he coughed up a vast quantity of corruption, of a most offensive nature.—As he feels no uneasiness from the drops, he insists upon taking them in much larger doses, observing that no time is to be lost.

Six o'clock P. M. Has taken eighty drops of the tincture twice to-day, without exciting nausea. His pulse, however, is now as low as 66 strokes in a minute.

Sunday, 22d.—Sweated profusely last night: slept ill: has coughed up a good deal of matter this morning.

Seven o'clock P. M. Has taken 100 drops twice to-day. No nausea: pulse about 60: cough not so troublesome. Again rides out.

Monday, June 23d.—Six o'clock P. M. Having been obliged to visit a patient in the country to-day, he had the boldness to venture upon three doses of the tincture, an hundred and ten drops in each dose, in my absence. No nausea, however, was produced by the medicine; but he observed his pulse as low as 54 and 58. Says he has felt no pain in his side. His cough is easy; but what he expectorates is still offensive.—Directed not to exceed 110 drops at a time.

Tuesday, 24th.—Seven o'clock P. M. Has taken two doses of 110 drops to-day. No nausea: pulse as yesterday: sleeps better.

Wednesday, June 25th.—Seven o'clock P. M. Took 110 drops half past eight o'clock this morning, and another dose half past twelve; soon after which he felt very sick, and sent for me. I found him lying a-bed, complaining of great nausea; and it was with difficulty he could prevent himself from puking. His skin was very cool, and his pulse beat precisely 45, and was full and soft; and, at this hour (seven o'clock in the evening), it continues to beat nearly the same number of strokes in the minute.

Friday, 27th.—Took no drops yesterday, as the nausea continued; and his pulse did not exceed 50. No fever nor sweat last night. Observes that he makes a great deal of water; and, what he thinks extraordinary, from being of the colour of brine, it is now perfectly clear. His stools, too, he observes, are so dry that they crumble to pieces like dry clay.

His diet still consists of milk and vegetables, and he indulges freely in ripe fruits.

Has been obliged to take opening pills frequently.

Saturday, 28th.—Slept well: has coughed very little this morning. Took only one dose of 100 drops of the tincture yesterday, which occasioned a distressing nausea all day, and kept his pulse low.

There is an eruption all over his body like the prickly heat.

Sunday, 29th.—Has passed a good night. No return of any pain in his breast or side. Little cough: little expectoration, and not offensive.

Took three doses of the tincture yesterday, 100 drops in each dose, without immediately exciting nausea; but this morning he has been very sick at his stomach. Thinks this nausea relieved by drinking a little hyson tea; and had a keen appetite for his breakfast, which is remarkable.

About half an hour before he got out of bed to-day he counted his pulse accurately, when it beat only 38 strokes in the minute; and at this hour (ten A. M.), though he has been walking about, it beats exactly 50, and is very soft.

Omit the tincture to-day.

Tuesday, July 1st.—Has slept well these two nights. Continues to mend. Rode eight miles this morning. Takes 100 drops of the tincture once a-day, which keeps his pulse under 60. He is directed to ride out every morning, to avoid all bodily exertions, to continue his vegetable diet, and to take the drops only every second or third day, or what is just sufficient to keep his pulse moderate.

July 20th.—He has been taking the fox-glove as directed, but finds himself so entirely relieved from all his pectoral complaints that he begins to leave it off. From the 22d of June to this date his pulse has never exceeded 60, excepting at one time, when he imprudently engaged in very active exercise.

November 1st.—Since last report he has enjoyed perfect health. For ten weeks past he has taken none of the digitalis, and now eats meat freely. Of late he has been remarkably drowsy, and says it requires some exertion to keep awake. Since he began the fox-glove he has taken no preparation of opium—indeed, no other medicine except aloetic pills occasionally.

January 24th, 1801.—He continues to enjoy good health, and, at present, is fatter than he has been for many years.

The tincture used in the above case was prepared as follows: Two ounces of fox-glove, nicely dried, were coarsely powdered, and infused, for forty-eight hours, in half a pint of French brandy, and then passed through filtering paper.

ARTICLE V.

Practical Remarks *on the* Use *of* Digitalis *in* Consumption. *By Dr.* Spence, *in a Letter to* * * * *

Sir, *Dumfries, Dec.* 14, 1800.

I SHALL submit to your consideration a short but candid view, divested as much as possible of technical terms, of my present mode of exhibiting the digitalis in cases of pulmonary consumption; and, in doing so, for the sake of perspicuity, shall divide the disease into two periods—the incipient and advanced stages—and add a few general observations.

1. In the incipient stage of consumption, when there is considerable vigour of constitution, particularly if attended with active hæmorrhagy from the lungs, I push the use of the digitalis cautiously, but freely—that is, I try to reduce the pulse under 60 strokes in a minute, and maintain this depression for two or three weeks, notwithstanding there may be occasionally considerable and distressing nausea. At the same time I advise a milk and vegetable diet, with gentle exercise on horseback, or in a carriage, when the weather will permit;

and the use of the swing-chair, for an hour at a time, twice or thrice a day.—When the pains about the chest are *wandering*, I also advise the repeated application of blisters, and other stimulating plasters, to the breast and between the shoulders; but if the pain be *fixed*, I prefer the introduction of a seton as near the part affected as possible. My patient is also directed to drink moderately of emollient teas or tar-water, to be warmly clothed, to avoid cold and wet feet, and sitting up late at nights. All great exertions of the body, but particularly of the lungs, as singing or speaking loud, must also be carefully avoided.

2. In the second or more advanced stage of the disease, accompanied with a quick pulse and great general debility, the treatment is very different. The fox-glove must be so managed as to lower the pulse and moderate the fever, but never pushed to such an extent as to excite nausea or sickness at stomach.

A little experience will soon enable a judicious and attentive practitioner to ascertain the doses adapted to his patient's constitution; and, as soon as he has attained this knowledge, he must be persevering in the use of the medicine. At this period of the disease the patient's strength must never be suffered to languish. He must be supported by nutritious diet.—Agreeably to the present manners of society, two or three meals are taken in the course of the day; but this mode of eating is very improper with delicate constitutions—more food being generally eaten at such stated periods than is necessary, thereby causing great heat, accelerating the pulse, and throwing the whole system into commotion. The diet should be nourishing, and of easy digestion—such as jellies, broths, eggs boiled soft, oysters raw or moderately roasted: indeed, a bit of fowl, beef, mutton, or venison, when attainable, dressed *rare*, may be taken in small quantities every two or three hours throughout the day. This deviation from the present fashion of eating is indispensible, ample nourishment being thereby thrown into the system without exciting irritation. At the same time that I recommend solid food in this way, I forbid the use of spices, wine or spirits.

The same directions respecting local applications, and exercise, are equally applicable to this as to the incipient stage; and particularly the exercise of swinging: and care must be taken that the swing-chair be so constructed that the patient may be perfectly at ease, without being affected by fatigue or bodily exertions.

3. *Some general observations.*—Should a physician be anxious to predict the probable future effects of the fox-glove, I would request his attention to be particularly directed to the state of his patient's pulse. When there is a change from a hard and quick to a full and soft pulse, he may prognosticate flattering consequences.

I have, at present, patients taking this medicine in powder, tincture and pill; but to the last form I now give a decided preference. The pill is generally most agreeable to the patient, and less apt to create nausea.

In only one instance have I found it bring on numbness of the extremities, stupor, great lassitude, and a reluctance to move. This happened to a young lady who was very far advanced in a consumption when she commenced the use of the fox-glove. When under this influence of the medicine she had no cough, no pain, and her breathing was easy.

Dr. Adams, of Richmond, in this State, writes me, that a patient who was taking this medicine under my directions there, had his pulse reduced as low as 42, but then it beat irregularly.

Whenever these violent effects take place, the fox-glove must be omitted for two or three days, and then resumed in smaller doses.

It has only in one case proved laxative; but this was easily counteracted by combining it with opium, to the extent of a grain or half a grain in the course of twenty-four hours. I begin to think that these two medicines may be so combined and modified as to produce the finest effects in a variety of diseases, and particularly in the advanced stages of consumption; but as yet I have not had trials enough to authorise me to draw conclusions.

In most cases there has been a constipation of the bowels, which is easier, as well as more safely removed, by emollient injections than by catharties. In such instances I recommended stewed prunes, and various preparations of rye meal.

In every case that has hitherto fallen under my notice, *where the patient could bear the medicine well*, I can assert that those colliquative or wasting sweats, so well known to physicians, and the constant and dreadful attendants of hectic fever, have invariably ceased as soon as the system was distinctly under the influence of the fox-glove.

In two cases of patients in the very last stage of the disease, who were extremely solicitous to make trial of the digitalis,

I found the tincture, powder and pill, even in very moderate doses, create such a distressing nausea, and so completely destroy the appetite, that I was obliged to forbid its use. In one of these cases I thought a light watery infusion of columbo-root, with a little orange peel, enabled the patient to bear the medicine somewhat better. It is, therefore, my present opinion, that no physician can pretend to form a justifiable prognosis, until he ascertains, on trial, how his patient's stomach will bear the medicine. My first patient, Drinan, fortunately experienced no uneasiness from large doses, excepting a temporary nausea; and I have now a young gentleman under my care, who lives about 100 miles from this place, with whom the digitalis seems to agree extremely well. From his last letter, dated January 15, I shall give a short extract; and here it may be observed, that he was obliged to spend the last winter in the West-Indies on account of his pectoral complaints, and has now been taking the fox-glove for more than twelve weeks under my direction:—

"At present I think myself in a good way. My appetite not so ravenous: my digestion as well as can be wished: the pulse, for some time past, early in the morning, from 44 to 50, varying through the day from 70 to 90, and sometimes, when under exercise, to 100. My cough, in the course of the twenty-four hours, not more than once or twice painful. —The only drink I *indulge* in at present is a little tar-water; but I am tired of it, and wish for a change."

The foregoing statement exhibits a general outline of my manner of administering the digitalis in consumptive cases, as well as the result of my present experience. How far my opinions and practice may concur with the opinions and practice of others I know not, having had no communications on the subject with any physicians, excepting with those who have almost implicitly followed my directions.

Before I close this letter, permit me, Sir, to observe, that although I am, perhaps, the first person who announced in the American newspapers a case of phthisis pulmonalis successfully treated by the use of the digitalis, yet I am far from thinking it a certain cure in every case of pulmonary consumption. In the early stages of the disease, where there is no mal-conformation of body, I believe it will prove a successful remedy; but where this mal-conformation exists, I think it will not cure; neither do I think it will effect a cure in the very advanced periods of the disease. But even in the

last and fatal stage, if the *stomach will bear the medicine*, it will mitigate distressing symptoms, and thereby tend to smooth the passage of the declining patient.

We know the Peruvian bark will not cure every intermittent fever; but is the bark, therefore, to be undervalued? "Could we obtain," says an able writer, "a single auxiliary for the fox-glove, such as we have, in many substances, for the bark, I should expect that not one case in five of consumption would terminate as ninety-nine in an hundred have hitherto terminated. But I believe a majority of cases will yield to simple fox-glove."

ARTICLE VI.

REMARKS *on a* LETTER *of the Rev.* ZECHARIAH LEWIS, *relating to a* SUBTERRANEAN WALL, *discovered in North-Carolina. By* JAMES WOODHOUSE, *M. D. Professor of Chemistry in the University of Pennsylvania, &c.*

TO THE EDITORS OF THE MEDICAL REPOSITORY.

GENTLEMEN,

IF Mr. Zechariah Lewis had seen my reply to the Rev. Mr. Hall's account of the celebrated subterranean wall of North-Carolina, published in the Medical Repository, vol. ii. p. 275, he could not have asserted, that the opinion that the wall was basaltic was hastily adopted, from a single corresponding property having been discovered between the stones composing the wall and basaltes. When he reads that reply, he will find various reasons brought forward in support of the opinion there advanced; several authors who have written on the subject in question quoted; an accurate analysis made of the external and internal part of the stones, and of what is improperly called the cement, and compared with the results of the experiments of Bergman, Mongez, and Faujas de Saint Fond, on the basaltes of other countries.

Having made these necessary observations, I will proceed to consider the arguments produced by Mr. Lewis, to prove, that the wall is a production of art.

First. It may be remarked, that the opinion that the wall was constructed by some enlightened antediluvian nation, or some civilized people, who may have wandered from the

eastern continent; or that it was built for the purpose of inclosing a prison, a garden, or a city; or that the small stream which runs near the wall was once a large river, and that the wall was erected to guard against the rise of its waters, has no foundation but in the imagination of the reverend writer.

Secondly. He thinks that the fine white powder, called cement, with which the wall is supposed to have been plastered, may have been manufactured from the shells of muscles, great quantities of which are found in the neighbourhood of the wall. Mr. Probly, he says, assured him, that he burnt the shells, dried the cement, and, upon comparing the two, could find no difference between them.

Muscle shells, exposed to the action of fire, are almost entirely converted into quick lime; but in one hundred parts of the cement, there is no more than five parts of this earth. Muscle shells contain no iron, but there is a considerable portion of this metal in the cement.

One hundred grains of these shells will not afford, like the cement, fifty-five grains of silex, sixteen of alumine, and three of magnesia. Mr. Probly has not favoured us with any chemical experiments, to prove that there is no difference between burnt muscle shells and the cement; the only proper method of proving a similarity between these bodies.

Thirdly. At a small distance from the wall, Mr. Lewis informs us, there is a species of clay resembling fuller's earth, of which the cement may likewise have been made. What is called fuller's earth, never turns of a white colour like the cement; and the clays of this country, with few exceptions, burn of a red colour. The cement retains its whiteness, when exposed to a heat insufficient to melt it. In order to prove that the cement is composed of fuller's earth, or this kind of earth mixed with burnt muscle shells, it will be necessary to show that a mechanical mixture of these substances gives the same principles by analysis as the cement.

Fourthly. He says the wall is perfectly regular, and has every possible appearance of an artificial production.

In my letter to Mr. Hall it was expressly mentioned, that the regularity of the wall was no proof of its being a production of art; for that the basaltes of Italy appear like piles of wood, of equal thickness throughout, and extend to a considerable distance.

The following account of the cave of Fingal, extracted from Garnet's tour through Scotland, will show how little the re-

gularity of the wall contributes to prove that it has been the production of a civilized people.

"As we turned the southern point of the island of Staffa, the basaltic pillars became vastly more regular, and the view of this side of the island was grand beyond conception: it appeared like the end of an immense cathedral, whose massy roof was supported by stupendous pillars, formed with all the regularity of art. Proceeding still further along the same side of the island, we had a view of Fingal's cave, one of the most magnificent sights the eye ever beheld. It appears like the inside of a cathedral, of immense size, but superior to any work of art, in grandeur and sublimity, and equal to any in regularity.

"Regularity is the only part in which art pretends to excel nature; but here nature has shown, that when she pleases she can set man at nought, even in this respect, and make him sensible of his own littleness. Her works are, in general, distinguished by a grand sublimity, in which she disdains the similar position of parts, called by mankind regularity, but which, in fact, may be another name, for narrowness of conception, and poverty of idea; but here, in a playful mood, she has produced a regular piece of workmanship, and on a scale so immense, as to make all the temples built by the hand of man hide their diminished heads."

Dr. Van Troil, speaking on the same subject, says—"This piece of nature's architecture far surpasses every thing that invention, luxury, or taste, ever produced among the Greeks."

Fifthly. An extract is made from the British Encyclopædia, to show that basaltes is always found standing up in the form of regular angular columns.

This is not true. The strata of the basaltes of some parts of France run in an horizontal direction.* Mr. Strange, in an essay published in the sixty-fifth volume of the London Philosophical Transactions, asserts, that they sometimes are found running in this manner.

Sixthly. He says there is nothing between the basaltic columns of other countries, resembling the cement of the wall.

This observation is not just. A cement of a beautiful white colour is found between the basaltic pillars, in the cave of Fingal.†

* Histoire Naturelle de la France Meridionale, par M. l'Abbe Giraud Soulavie, tom. ii. p. 52.

† Garnet's Tour through the Highlands, p. 224.

Seventhly. It is another property of basaltes, adds he, that it is fusible, *per se*, by a moderate fire. This is not the fact with the wall, consequently it cannot be basaltes.

To this I reply, that I have fused the stones of the wall, in half an hour, with the greatest ease, and that they melt into a black glass.

Eighthly. Neither stones, nor other mineral substances, our author informs us, are covered with rust, unless they have been exposed to the action of the aërial acid. On the supposition that the wall is basaltes, the individual stones could never have been exposed to the air. The stones are covered with rust, consequently the wall cannot be basaltes.

The first part of this observation is not accurate. Mr. Lewis has not proved, that the rust of the stones contains the aërial acid, which he ought not to have taken for granted. The word rust is a vague term, and conveys no precise idea to the mind. The brown ochreous matter, with which the stones are covered, has been formed by the agency of water, acting upon the iron they contain, which has decomposed or calcined them. The aërial acid has no action in the business. The same kind of rust is found on the basaltes of other countries.*

Ninthly. The stones composing the wall are certainly basaltic, as every mineralogist can tell by inspecting them, because they exactly answer the description of basaltes given by various writers; and because the white powder, improperly called cement, the external and internal parts of the stones, contain the same principles, and nearly in the same proportions as the basaltes of other countries.

I shall conclude this letter, by remarking, that the supposition that the North-Carolina wall has been constructed by an enlightened antediluvian nation, is as unphilosophical as the belief of some of the common people of Scotland, that the cave of Fingal is artificial, and was built by a race of giants, for their celebrated chief, Fion-Mac-Cool, the father of Ossian.

I have the honour to be,
Gentlemen,
Yours sincerely,

JAMES WOODHOUSE.

* French Encyclopædia, and Nicholson's Chemical Dictionary—article Basaltes. Vide also Fourcroy's Chemistry.

ARTICLE VII.

A COLLECTION *of* PHENOMENA, *relative to the Connection between* EARTHQUAKES, TEMPESTS, *and* EPIDEMIC DISTEMPERS; *and a* VINDICATION *of the* DOCTRINE *of* EQUIVOCAL GENERATION. *By* NOAH WEBSTER, *jun. Esq. in a Letter to Dr.* MITCHILL, *dated New-Haven, March* 2, 1801.

SIR;

IN the course of my studies I sometimes fall upon relations of unusual facts, which it may, possibly, be useful to place in your highly valuable Repository. The scraps that I send you are at your service; only do not insert them to oblige me—but let their publication depend on your own opinion of their value.

In my History of Pestilence I have suggested the connection between electricity and earthquakes, and violent tempests.—The following is a singular concurrence of facts to confirm the opinion.

On the 18th of October, 1769, four minutes before 12 o'clock at noon, a smart shock of an earthquake was felt at Kennebec, which lasted about a minute, and was instantly followed by a hurricane of wind, from N. W. by W. This wind continued all day. The next day, at the same minute of the day, another shock was experienced of still greater severity. Connect. Journal, Nov. 10, 1769.

It is a common remark, that thunder storms are less frequent and severe, within a few years past, than formerly. I think the remark well founded. The frequent and tremendous storms of that sort, from 1767 to 1773, are still fresh in my mind. One of them is worth notice, on account of the effects on the human body. On the second of September, 1771, a fearful storm of thunder, lightning, and rain happened at Fairfield, in Connecticut. It lasted two or three hours—the heavens were almost continually involved in a sheet of livid flame—the earth trembled with the thunder—and pewter was shaken from shelves. This storm left people with a dull, heavy pain and stupor in the head.

In connection with this fact, it may be remarked, that the cases of apoplexy and palsy, in 1771 and 1772, far exceeded what are usual. I have before me a list of cases that occurred

within a few months in this city and neighbourhood, equal to what is usual in the same number of years.

All the ordinary operations of the elements were upon a great scale. The inundation in Virginia, in May, 1771, swept away about five hundred buildings on James River only. The legislature granted thirty thousand pounds to the sufferers. Such occurrences are rare.

The memorable tempest of September 8, 1769, which levelled hundreds of houses, has probably not been equalled since, certainly not for many years past. Possibly, the great storm at Newfoundland, September 2, 1775, when the sea suddenly rose twenty or thirty feet, might have been equally fatal. In 1768 and 1769, Marblehead alone lost twenty-three sail of shipping, in violent gales, with one hundred and sixty seamen, besides many who were washed overboard from vessels that escaped destruction. By those losses seventy women were made widows, and one hundred and fifty-five children lost their fathers. Such periods fortunately are not common.

The diseases of that period were angina maligna, catarrh, and especially measles, which, probably, invaded the whole world. I have found the latter disease in the West-Indies, at the Cape of Good Hope, in Europe, and all parts of North-America.

The following case of yellow fever occurred in New-York, in 1771: Jacobus Roosevelt, on the remarkably hot Tuesday, August 6, drank too largely of cold water—was seized with pains in the stomach and bones—died the next day, and turned as "yellow as in a jaundice."

It is the common opinion, that mephitic air in wells and vaults is generated slowly, and is to be ascribed to a stagnation of the air in covered places. I have ventured, in the Appendix to my history, vol. ii. p. 334, to call in question this opinion, and suggest, that the deleterious gas is produced suddenly.

The following cases are in proof of that opinion. In July, 1770, a man in Boston entered a cistern to cleanse it, and instantly fell dead. The cistern had been entered a few days before without inconvenience.

In August, 1774, a boy went into a well, of about twelve feet deep, in Danbury, in this State, to get a vessel that had fallen in. He instantly fell motionless and died. This well *was open and used.* On examination it was found, that all the wells in the neighbourhood were filled with the noxious vapour. As these wells were open, and as the inhabitants ge-

nerally use a bucket to draw water, we have full evidence that the wells must have been filled suddenly, or in a short time, and nearly at the same time; for the action of the bucket speedily dissipates, and mixes the vapour with the air. I do not know whether the mortal dysentery at Danbury, the next summer, of which I have given an account in my history, under the year 1775, can be ascribed to the gas expelled at that time; but it deserves remark.

These facts, with those which I have related in the addenda to my history, seem to establish the point, that the carbonic acid gas, called damp, or mephitic vapour, is not generated slowly by a chemical process; and that stagnation in a covered well is not at all essential to its existence. The old theory then must yield to facts, and I wish you to turn your thoughts to the subject. I am more and more persuaded of the truth of my conjectures, that some internal force or demand *ab extra*, at times, expels from the earth some of the materials of our atmosphere; sometimes with a trembling of the earth, and sometimes without any sensible concussion; and that the noxious vapours, subsiding into low places, or combined with the aërial substances, evolved from animals and vegetables, constitute the invisible, but deadly agents of pestilential diseases.

The autumn of 1773 was so mild that green pease were gathered at Norwich, in Connecticut, about the first of November; and fresh ripe strawberries, a second growth, were gathered at Fairfield.

On the first and second of October, 1770, snow fell to the depth of six inches in Berkshire county, Massachusetts, and lay several days. The green leaves of trees were not affected. This was a rare instance of early snow. The following fact is equally singular. In autumn 1757, a deep snow and severe cold happened in October, the precise day I cannot learn. The frost was so severe, that the harbour in this place was closed with ice—an event that occurs only in our severest winter weather. This cold lasted four or five weeks, when the weather became temperate in December, and remained as mild as spring during the winter months.

I have often heard of fire balls during tempests, but the following fact is more remarkable. On the 12th of August, 1771, in a perfectly clear day, a blaze of fire entered a room at Cape-Elizabeth, in Maine, where a young woman was weaving, burnt one of her arms, and set fire to the harness and web in the loom. The cries of the woman brought relief, and the fire was happily extinguished. Electrical phe-

nomena were unusually numerous in that and the next year; but I leave philosophers to judge of the connection and the causes.

In our old histories we read of springs and rivers of blood, which the distempered imaginations of men converted into omens dire. A similar phenomenon happened about two years ago, at Salem or Fredericksburgh, but the account of it is mislaid. The following is before me. On the third of April, 1769, a small stream gushed from the earth at New Canaan (Columbia county), exhibiting the appearance of blood. The water in a vessel was of a deep carnation. This discharge was of an hour's continuance. The phenomenon was repeated for several mornings near the same place, and when dry, the earth had an offensive smell. My motive for relating this account is, to evince the impropriety of charging Livy, and other authors of credit, with relating fables.

But I have a more serious subject of discussion. In the review of my History of Pestilence it is expressed as a matter of regret, that I had espoused the exploded doctrine of equivocal generation. I confess the rejection of the doctrine, as I understand it, is a strong proof of the pride of modern philosophers, and their willingness to embrace any current theory of the day, without reason, and contrary to most obvious facts. Equivocal generation, in the true understanding of the phrase, denotes doubtful or uncertain origin. That modern discoveries have explained some things which were once uncertain, is undeniable; but the generation of many animals is yet as uncertain as it was in the days of Aristotle. Just as far as facts will authorise us to go, so far we tread on sure ground:—all beyond is hypothesis; and we have no right to adopt or reject general doctrines on hypothesis. Will any man venture to assert that the worms found in the human stomach are not animals? or that they are generated by a parent worm of the same species? or that a worm of twenty inches in length, found in a human liver, had a parent of the same kind, when, perhaps, a similar animal never before existed? In 1773, the patients in a very malignant dysentery in East-Haven, generated worms in such numbers as to be suffocated by them. Where or what was the parent animal, that, on that particular occasion, deposited its young, or the germs of innumerable animals, where none had appeared before? It is possible, in such a case, that each worm may have, for its origin, a germ of animal life in an undiscovered insect; yet the phenomena warrant us in determining that they could not proceed from a

parent of the same species, but from some unknown germ or principle; and this is precisely equivocal generation.

Again; let a particular plant be transported to a distant country, where nothing of the sort ever grew: on that plant will be found insects which were never before in that country. Let a single tobacco-seed be conveyed to an island a thousand leagues from any spot where tobacco has ever been propagated, and the plant from that seed will contain a worm never before existing on that island. Perhaps an egg may be deposited by an animal, and perhaps such a germ of animal life may be essential to the existence of that worm; but the worm shall be a new species in that island, and one that could not have existed there without that particular plant.

The generation of the eel is a point that has puzzled all the investigators of nature. Some philosophers have conjectured that they have discovered the marks of sex in that animal; but it yet remains doubtful. It is acknowledged on all hands, that let a pond of water be made in any suitable place, remote from other water, and it will, in a reasonable time, be furnished with eels. It is agreed that these animals could not travel thither by land, and, therefore, men resort to *hypothesis* to account for their origin, pretending that they must be transported by aquatic birds. *Encyclop. art. Muræna.*

A remarkable instance of this kind of solution of difficulties we have in the History of Carolina, vol. ii. p. 303. Lond. 1779. I will cite the whole passage. "In every plantation great care is taken in making dams to preserve water for overflowing the rice-fields in summer, without which they will yield no crops. In a few years after this pond is made, the planters find it stocked with a variety of fishes; but in what manner they breed, or whence they come, they cannot tell, and, therefore, leave that matter to philosophical inquirers. Some think that the spawn of fish is exhaled from the large lakes of fresh water on the continent, and, being brought in thunder-clouds, falls with the drops of rain into these reservoirs of water. Others imagine that it must have remained every where among the sand since the time the sea left these maritime parts of the continent. Others are of opinion that young fish are brought by water-fowls, which are very numerous, from one pond to another; but, be that as it will, the effect is visible and notorious all over the country." These are curious modes of propagating fish. The latter resembles the method of spreading epidemic diseases—the water-fowls being the fomes, which, after swallowing and digesting the

fish, fly away to a distance, and communicate the infection to an empty pond. I have heard of eels sliding through fowls undigested; but this is the first time that I ever heard of such flimsy suppositions to help out a theory of propagating other kinds of fish.

Indeed, Sir, I think it more becoming the limited knowledge of man to acknowledge his ignorance, than to be positive on such doubtful subjects. It is far from being impossible that the principles of animal and vegetable life may be radically the same—descending from man to the minutest germ of life in grades almost imperceptible in the larger species, and in the smaller species wholly beyond the reach of optics; and these elementary principles may originate life, in the form of vegetables or animals, according to the nidus. But hypothesis must not be the basis of system; and when the mode of generation is doubtful, I set it down as *equivocal*, which is only another term for human ignorance.

It is well known that vegetable substances have been found growing out of the flesh of living animals; not from seed most certainly, for the vegetables are of species unknown, and *sui generis*.

The minutest part of a polypus, detached from the animal, produces a new and perfect animal—not by any usual mode of generation: and the whole class of zoophytes confounds all philosophical reasoning on this subject.

As to the atheistical tendency of the doctrine, I am quite unconcerned on that score. There is a fashion in opinions as well as in dress: each system must have its day. Not many years ago Boerhaave was the *omnis homo* of the faculty. He soon yielded his place to Cullen: Brown triumphed over Cullen: and now Sydenham, who had been cast away as rubbish, has reassumed his station as the father of a system, with his occult qualities. Similar is the rotation of opinions in chemistry. Opinions even become national—and we see Lavoisier arranged against Priestley, as formerly Cassini against Newton.

With respect to the theological consequences of the doubtful generation of plants and animals, I have one remark to make—That the modern distinction between primary and secondary causes seems to be carried too far; and, if I mistake not, has been the means of supporting, if not of originating, the usual arguments in favour of materialism. That matter can be endowed with laws, which shall operate uniformly and perpetually, independent of divine agency, may be possi-

ble, but appears to me unphilosophical. I can have no belief in permanency of duration in any being but God, and the operations of his power. The opinion that natural effects proceed from laws impressed on matter, without any direct exertion of divine power—and that supernatural effects are produced by the immediate agency of the Supreme Being—appears to me at least unfounded, and even unscriptural. The scripture generally ascribes every event directly to the first cause. It was God who hardened Pharaoh's heart, and who caused it to rain, as well as God who created the world, and arrested the sun in his course. This view of the question is not only more pious, but more philosophical; for I no more comprehend the growth and expansion of the rose in my garden, than the creation of the earth, or the resurrection of Lazarus. The result of my philosophy is to resolve every event and operation in the universe into the direct exertion of omnipotence. And I cannot but think that the modern doctrine of nature and natural laws, which seems to exclude the divine agency from most of the operations in the universe, has furnished the most tenable ground occupied by the materialists. This opinion of mine involves in it the idea that God is the author of evil; but this, in my mind, is no objection to it; for what we call evil is such only to our limited views.

But I am proceeding beyond my depth: it is best to put an end to this desultory letter. I have little leisure for philosophical researches—being engaged in compiling a system of principles for the education of our youth, on a plan new and more comprehensive than has yet appeared. I have an insuperable dislike to metaphysical studies, believing in the utility of plain matter of fact only.

With much esteem,
Believe me your friend and obedient servant,

N. WEBSTER, jun.

ARTICLE VIII.

REMARKS *on the* WORK *entitled* "A Brief History of Epidemic and Pestilential Diseases:" *In a Letter from Dr.* PRIESTLEY *to Dr.* RUSH, *dated Northumberland, May 4,* 1801.

DEAR SIR,

I THINK myself under very great obligation to you for recommending to me, so strongly as you did, the reading of *Noah Webster's Treatise on Pestilential Disorders.* I think, with you, that it is, indeed, a most important publication. It has given much light on a subject in which I find I had been wholly in the dark before, and which is becoming every day more interesting.

I am now convinced of what I had no suspicion, and should have thought exceedingly improbable *a priori*—viz. that pestilential disorders of various kinds are principally owing to a state of the atmosphere vitiated by things which appeared to be too remote to have had any influence in the case, such as earthquakes, meteors, and comets; that the influenza, and other more common diseases, with the morbid affections of plants and animals, generally precede the more malignant disorders of yellow fever and the plague; that these two disorders, which I had thought to be fundamentally different, are only modifications of the same thing; that quarantine laws are of little use, for that these disorders will not spread except in the morbid state of the atmosphere of any place; and that, in such a morbid state of the atmosphere of sufficient continuance, nothing can prevent their appearance. These very extraordinary and important positions I cannot help thinking to be abundantly proved by the facts produced by Mr. Webster, and for this I think he deserves the thanks of all mankind.

I give you this trouble, to lay before you a more decisive proof of the noxious nature of vapours issuing from openings in the earth, than any that Mr. Webster has alleged. He argues, and very justly, that there is a connection between earthquakes and pestilential disorders, from the latter almost constantly following the former; but what that connection is, and in what manner the one contributes to produce the other, he has not shown, at least so distinctly as will appear from the

account that I have lately met with of the formation of an island by a volcano in the bay of Santorin, in the Archipelago, written by a Jesuit who observed the phenomenon, and whose very particular description of it may be seen in the *Lettres Edifiantes et Curieuses*, vol. i. p. 78, of the Paris edition of 1780. The rising of this island is mentioned by Mr. Webster, but without the attendant circumstances.

The first appearance of this island was the 23d of May, 1707. During the volcano which produced it, he says, the sea of the gulph in which it was formed, from being of a bright green, assumed a red colour. Afterwards it was of a pale yellow, and it was accompanied with a great stench *(grande puanteur)*, which affected the isle Santorin, at the distance of several miles, in such a manner that the inhabitants were seized with acute pains in the head, and violent vomiting. He also observes that this vapour blackened silver and copper. (p. 87.)

This is not only a direct proof of a noxious vapour issuing from the earth, though covered by the sea, but that this vapour was of an acid nature, which favours Dr. Mitchill's proposal of alkaline remedies. Persons who went to examine this new formed island brought from it a congealed and heavy substance, which appeared to be a mixture of vitriol and a kind of refined bitumen; and when the volcano ceased, there flowed from the island a quantity of liquid matter, which was sometimes yellow, and sometimes red, but often green, extending four or five miles. (p. 105.) From this circumstance it may appear that this noxious acid vapour is some modification of the vitriolic, and not of a nitrous nature, as Dr. Mitchill supposes. Be it, however, any of the three mineral acids, it is rational to expect that it may be corrected by alkalies.

If seasons of pestilence may be expected after the appearance of meteors and earthquakes, there is some reason to apprehend the approach of another in these States: for in November of the last year an earthquake of a considerable extent was felt in Pennsylvania; and on the sixth of January, of this year, a very remarkable and very luminous meteor was seen at Northumberland, and many places at a great distance from it, so that it must have been at a great height in the atmosphere, as many others of the same nature have been.

Also, on the eighth of August last, I was called out of my house to observe a singular kind of lightning: indeed, it was more of the nature of a meteor than of lightning; for the

flashes were of some continuance, and many of them threw out a prodigious number of balls of fire. One of these *streams* of lightning, for they could not well be called *flashes*, very much resembled a rocket. It arose from below the horizon, and extended beyond the zenith; and there came from all the parts of it, in every direction, small balls of fire, which, by a common optical deception, seemed to be connected with their source by fine strings of fire. They went to some distance, and then vanished. It was a magnificent fire-work. Those flashes, some more and some less remarkable, but all differing from common lightning, continued a long time; and, I doubt not, were of the nature of meteors, and, therefore, may be expected to have the same consequences.

I would observe that the flashes of lightning which we have without thunder are, sometimes at least, in a region far higher than that of the ordinary atmosphere. When I lived at Leeds, in England, I remember to have been particularly struck with an appearance of this kind, which continued, almost without intermission, about two hours; and, collecting accounts of its apparent place and altitude, as seen from different situations, I computed that it was about twenty miles high, and nearly perpendicular on the promontory called *Flamborough Head*. But meteors, properly so called, have been observed a hundred miles high.

I cannot forbear expressing my surprise that a person who writes so judiciously as Mr. Webster does, with respect to the proper object of his work, should advance opinions so wild and unphilosophical as some that appear towards the close of it, and especially that he should be an advocate for what I thought to have been the long exploded doctrine of *equivocal generation*—believing that various animals, the structure of whose bodies is as exquisite as that of man, all bearing marks of infinite wisdom, should arise spontaneously from the natural elements of earth, air, water and fire, which are void of all intelligence.

Among such animals he enumerates, besides insects in general, and some of them of *unusual forms*, clouds of flies, black worms an inch and a half in length, which devoured grass and corn, generated, he says, suddenly, and covering two or three hundred miles of country, and the Hessian fly. He seems, too, to believe that the extraordinary number of frogs, toads, and even shad, which precede seasons of pestilence, have no other origin than that pestilential air producing

an uncommon degree of excitement, which he ascribes to electricity—and that they are again destroyed by a sudden change in the elements which produced them.

After saying that "new plants frequently spring up, generated by new powers in the elements, occasioned by different combinations of heat, moisture and air, without any previous seed—and that the elements of air, water and fire, are fitted to produce animals of kinds proper to subsist on them"—he expresses his wonder that "men should still be found to deny the doctrine of equivocal generation."

But if any one of these plants or animals, even the smallest, and to appearance the most insignificant, could be formed without intelligence, from unconscious elements—oaks, elms and cedars—horses, elephants and men, might have originally come into existence in the same way, and the whole universe have had no intelligent author. And yet Mr. Webster appears not only to be a believer in a supreme intelligent author of nature, but in revelation too. I am confounded when I reflect on such inconsistencies, and that they should be found in a work which, for a laborious collection of facts, the accurate statement of them, and just reasoning from them, is truly admirable.

Had Mr. Webster maintained that any being, of sufficient power and intelligence, had interposed on these occasions, and produced new plants and animals, or an extraordinary number of old ones, and removed them when they were no longer wanted, there would not have been any thing impossible, but only highly improbable, in the supposition—miracles being supposed to be wrought without any just occasion for them. But to ascribe the production of living beings, bearing marks of infinite skill, to elements without intelligence, and even without life, is not placing the world upon the elephant, or the elephant upon the tortoise, but upon nothing at all.

Not doubting your concurring with me in these sentiments,

I am, dear Sir,
Yours sincerely,

J. PRIESTLEY.

P. S. Having, in the preceding letter, given an account of a change of one of my opinions, and a cure of a prejudice of one kind, I am reminded of the removal of another during my late visit to Philadelphia. It was that which, in common with many Englishmen, I had against blood-letting. I

now believe that I owe my life to your judicious direction of it. I shall also never forget your so readily forgiving my suspicion, and my requesting the concurrence of Dr. Wistar after the third bleeding. But it was his opinion, as well as yours and Dr. Caldwell's, that my disorder required several more; and the completeness of my cure, and the speediness of my recovery, prove that you were right. In the future I shall never be afraid of the lancet when so judiciously directed.*

If you should think this letter of sufficient importance, I shall have no objection to your sending it to the *Medical Repository*.

* In order to render this matter more intelligible to readers at a distance, it may not be amiss to mention, that, in consequence of the great difference in modes of practice between Dr. Rush and several of the physicians of Philadelphia, which took place during the yellow fever in the year 1793, and afterwards in some other violent diseases, Dr. Rush objected to consulting with them. Since, however, a greater uniformity of opinion is said to have taken place among the physicians of that city in the use of the remedies in queſtion, Dr. Rush's objections have ceased; and we are informed, that, when required, he now consents to meet any of his brethren in a sick room. However painful and disagreeable the consequences of Dr. Rush's conduct have been to himself and others, it must be admitted that there may result at least equal mischief from phyſicians of opposite opinions and practice undertaking to consult with each other. Two opposite modes of treating a disease may be equally successful; but surely a mixture of the two modes (which generally takes place when physicians of opposite principles are induced to consult) must be always hurtful, and frequently fatal. EDIT.

ARTICLE IX.

An ACCOUNT *of a* CHILD *nearly poisoned by the* SEEDS *of the* THORN-APPLE: *Communicated in a Letter from Dr.* SAMUEL BROWN, *of Lexington (Kentucky), to Dr.* MITCHILL.

ON the 5th of April, 1801, I was called a few miles from Lexington, to visit a child of Mr. George Bryan, aged two years. The following history of her complaint was given me by her relations.—About ten o'clock of the same day she was observed to catch at the blaze of the fire in a very singular manner, and a few minutes after fell on the floor as if she had been paralysed on one side. In a short time symptoms of violent fever came on, with delirium, and

a scarlet efflorescence over the whole body, which had not entirely disappeared when I saw her first, at 12 o'clock P. M. This efflorescence was much more bright and lively than that which characterises scarlatina. Through the day the delirium continued with short intervals of reason. An unceasing disposition for motion in all the muscles, weeping, screaming, laughter, and rapid incoherent exclamation, formed the leading features of this disease, which to me was both new and alarming. Once or twice the child had made feeble efforts to vomit, which induced the family to believe that worms were the cause of these extraordinary symptoms. My hesitation and doubt with regard to the truth of this opinion, I perceived, gave the parents of the child considerable uneasiness. But as I was impressed, from the beginning, with a firm conviction that there was something in the case which I had not before seen in my practice, I thought it proper to act with much caution. On presenting a candle to the child, I discovered an unusual dilatation of the pupils, and a remarkable squinting of the right eye, which, however, was not constant. The pulse was extremely irregular; sometimes it was hurried and fluttering, sometimes it was tense and strong, and frequently its action was not discernible. The motions of the limbs and body resembled those which mark the highest grade of *chorea sancti viti*, but were much more convulsive and violent, and excited in the spectators rather a *painful* than a *ridiculous* emotion. Contemplating the case with great solicitude, it occurred to me that these strange symptoms might originate from the effects of the datura stramonium on the stomach, and I immediately inquired if that plant grew near the place, but was answered in the negative. On repeating my inquiries, however, one of the children informed me that she had given some seeds to another sister who was not indisposed, but firmly asserted that none had been taken by the one who was ill. This discovery, although not completely satisfactory, rendered my first conjecture still more probable, and I determined to act agreeably to it. I therefore administered a strong dose of emetic tartar. It was long before I could produce nausea; and as the first efforts to vomit were abortive, I made use of a feather, which excited one feeble motion. No seeds were discharged; and I found great difficulty, even by the feather, in awakening the powers of the stomach. I had lately read some remarks of M. Humboldt on the possibility of renovating the excitability by alkalies, after exhaustion by opium. It occurred to me that I might

accomplish the same object when the excitability was wasted by any other stimulus. I therefore gave eighteen drops of ol. tartar, *per deliquium*, in a tea-spoonful of warm water. This had not reached the stomach two minutes when full vomiting took place, and seven seeds of the stramonium were thrown into a plate which Mr. Bryan held, that he might have an opportunity of proving the event of my prognostic. Considerable quantities of what we supposed to be chewed seeds were thrown up. I still continued the administration of the tartar emetic, and the ol. tart. *per deliquium*, which, I think, always had the effect above ascribed to it. At length the bowels were moved, when I thought it prudent to give a little warm toddy, and leave the child to rest. In the morning I found, that notwithstanding she had slept well, some slight convulsive symptoms, together with wildness of countenance and dilatation of the pupils, remained. I ordered a few doses of rhubarb and pot-ash, which, in a day or two, removed every complaint.

The consideration of this case has suggested the following observations:

1. From the abundance of this plant around almost every dwelling in Kentucky, and from the sweetish taste of the seeds, it is very probable that children are frequently poisoned by it, whose cases have been mistaken for common convulsions, and thought to proceed from worms.

2. The common practice of many physicians, of resorting, in all spasmodic cases, to laudanum, or to calomel and opium combined, where worms are suspected, would, in all probability, have proved fatal in this instance, by contributing to the detention of the seeds, which the stomach had not dissolved after many hours.

3. Would not the topical application of the stramonium, by its power of dilating the pupil, facilitate the extraction of the cataract?

4. One of the most fruitful fields of physiological discovery is but little cultivated. A dose of opium, after a dose of pot-ash, ought, according to the experiments of Humboldt, to produce an effect very different from that which would result from an equal dose of opium taken after alcohol. From an attentive observation of the effect of *precedent* stimuli on the powers of those which are *subsequently* applied, it is probable that physicians may acquire from *old* drugs *new* means of combating dangerous and obstinate diseases. If the operation of a stimulus given this moment is *modified* by the opera-

tion of that administered immediately before it, we have great reason to suspect the truth of many of the Brunonian doctrines. This idea suggests the use of what might be called *predisposing remedies*, in order to obtain the full benefit of *efficient* ones, analogous to the *predisposing causes* which give to noxious substances the power of generating malignant distempers.

ARTICLE X.

EFFICACY *of* FERN *in causing the* DISCHARGE *of the* TAPE-WORM: *Communicated by Dr.* GARDINER JONES, *of the City of New-York.*

TO THE EDITORS OF THE MEDICAL REPOSITORY.

IT having been suggested by a friend that the following case might contribute, in some small degree, to the purpose of the Medical Repository, if it appear to the learned conductors of that valuable publication to merit a place, it is willingly submitted for insertion, by their friend and humble servant,

G. JONES.

ON the 6th of March, 1798, application was made to me in behalf of a young lady who was said to have a complaint of the stomach and breast. It had then been of some months standing. From the ordinary symptoms which presented, I suspected the disease to arise from worms, and advised, at different periods, several kinds of anthelmintics. The effect, at length, was an evacuation of some hundred joints of the tænia, or tape-worm: but notwithstanding almost incredible discharges of single joints and large convolutions of the worm, yet the patient received only temporary relief. Her pain of the breast, and extreme nausea, at intervals returned. Already had been administered repeated doses of calomel, cowhage, Carolina pink-root, santonicum, digitalis, preparations of steel, tin, and other things which I do not now recollect. Cathartics were occasionally superadded. But frequent discharges of numerous joints and large fragments of worm produced only a palliation of symptoms. Various kinds of bitter and saline medicines, succeeded by oleaginous and bitter injections, were given to no greater advantage. Still the pain of the breast and distressing nausea would frequently recur. Of

these symptoms carminatives and infusion of the bark produced only temporary relief.

It was on the 8th of July, 1800, more than two years from the date of the disease, when the strength and spirits of the patient were almost exhausted, that I procured from the country a quantity of fern, and directed a decoction to be made of the leaves. Of this she drank a pint a day, till some gallons had been taken, when a dose of castor-oil brought away the remnant of the worm, which consisted of four hundred and eighty-six joints, and measured in all forty-five feet.—The patient was immediately relieved, and continues since perfectly free from the disease.

ARTICLE XI.

CASE *of supposed* EXTRA-UTERINE FŒTUS: *Communicated in a Letter from Dr.* S. BARNUM, *of the City of New-York, to Dr.* MILLER.

New-York, April 11, 1801.

DEAR SIR,

HAVING had under my care an extraordinary instance of pregnancy, permit me to present you with a general history of the case.

About the first of June, 1800, Mrs. —— became pregnant with her first child. The symptoms of this state were such, at the commencement, as usually take place, and nothing uncommon occurred till the fourth month, when it was observed that she was larger than was usual at that period. She continued to increase in size very rapidly till the fifth month, when, from her appearance, one would have imagined that she had reached her eighth month. About the end of the fifth month, from imprudence, she was seized with violent pains resembling those of parturition, which soon brought on a profuse discharge of water, mixed with blood, from the uterus, and which, it was supposed, would soon terminate in miscarriage.

In this situation she was visited by a physician, who ordered her to be bled; after which the pains became less violent, and the appearance of blood was diminished for three or four days: there was then an increase of it for a week or more, when it almost entirely ceased, and the patient was so much relieved as to be able to walk about her room.

About the 20th of November, from exposure to cold and wet weather, she was again taken ill. The physician who had before attended her not being to be found, I was called in. I found her in great pain; and conceiving it proper to ascertain whether her labour had made any progress, an examination was made for this purpose. By this examination I discovered that the uterus was in a state approaching to that of retroversion; the os tincæ directed over the pubes, and the fundus towards the spine. I communicated this to the first attending physician, and likewise to another medical gentleman who was called in; who, from their own examination, agreed with me as to the position of the uterus.

The contraction of the uterus during the pains produced no change in its situation. Attempts were made with the hand to restore it to its natural situation, but all in vain. Anodynes and fomentations were then employed; notwithstanding which the pains continued to recur every fifteen or twenty minutes, for three or four hours, and then abated.

Before the first attack of pain the patient felt her child very lively; but after that its motions were scarcely perceptible. For a week previous to this period she had not felt it at all.

At this time her breasts became full of milk, and continued so for three or four weeks, when the secretion was suspended —what had been formed was absorbed—and the breasts became soft and flaccid. She observed to me that her child seemed to be on the right side, and that she could not lie on the left without giving herself pain.

The swelling of the abdomen began to subside after the discharge of the fluid from the uterus, and in the course of six weeks the size of it was not more than half of what it was at the fifth month, and during this subsidence of the abdomen the patient frequently complained of more or less pain. The continuance of pain exhausted her strength, and, at length, a troublesome diarrhœa came on, which, however, in a little time, was restrained by the use of columbo root in infusion: notwithstanding, she continued in a very debilitated state, and after the lapse of a few weeks the diarrhœa returned, and the stools were extremely offensive. She now complained of frequent chills, had regular accessions of fever every afternoon, cough, and œdematous swelling of the feet and legs. The abdomen was reduced nearly to its natural size, except a hard circumscribed tumour on the right side, immediately above the brim of the pelvis. This tumour seemed to be covered with nothing but the thin parietes of the abdomen, which rendered

it very distinct; and, when pressed upon by the fingers, a crepitous sensation was felt, similar to that arising from the diffusion of air in the cellular substance.

On the 8th of February, 1801, the diarrhœa was increased; the stools became more fœtid, and the pain attending them considerable. After an evacuation this day, she observed to the nurse that something hard had passed her; and, upon examination, it was found to be a fœtal os femoris, with some of the muscles adhering to it, in a decayed state. Immediately after this some of the fleshy parts of the fœtus came away, and soon after other bones of the extremities, entirely deprived of their muscles and ligaments. From this time bones were almost daily coming away with her stools, until almost the whole of the fœtal skeleton was discharged; when it being no longer in our power to support her strength, she died on the 12th of March.

Whilst the bones were coming away in the manner mentioned, particular attention was given to ascertain whether there was any discharge from the vagina, but not the least of any kind could be observed.

Unfortunately for the clear investigation of this case, permission to examine the body after death could not be obtained. An opinion, therefore, relative to its real nature, must rest entirely on conjecture; and when the symptoms and events of the case are considered, the most rational conjecture, in my apprehension, is, that it was one of the extra-uterine kind. But was it originally extra-uterine; or did it become so accidentally, from a rupture of the uterus during the violent pains which the patient suffered, and its being in a distorted position? If originally extra-uterine, how shall we account for the discharge of water from the uterus which took place in the fifth month, and which continued some time after? And if accidentally extra-uterine, from a rupture of the uterus, is it not probable that the violence done to this organ would have proved fatal much sooner than actually happened? Difficulties present themselves in whatever way we view the case. I shall, therefore, submit the facts, and leave it to others to draw their own conclusions.

I am yours with respect,

S. BARNUM.

ARTICLE XII.

CASE *of* POISON *by* ARSENIC: *Communicated by Dr.* S. BARNUM *to Dr.* MILLER.

New-York, April 11, 1801.

DEAR SIR,

ON the evening of the 16th of February, 1801, I had presented to me, by a young gentleman, a cup containing the remainder of a draught which a person had been just taking. Upon examination I found it to be white arsenic. I immediately repaired to the house where this person was, and, on coming into her room, I found her constantly reaching to vomit, and sometimes vomiting, with violent spasms of the stomach and bowels, with a weak and quick pulse, affected frequently with a diarrhœa of a dark bloody colour, and often complaining of coldness of her extremities. I immediately made inquiry how long it had been since she had taken the arsenic, and the quantity. From the best information that I could get, it was about an hour, and she had dissolved two ounces in a large tea-cupful of water. There was remaining in the tea-cup a table-spoonful or more of the arsenic, being partly in a dissolved state; the remainder, she said, she had taken. I concluded, from the time that she had taken it, that there might be some arsenic still remaining in the stomach that had not had its full effect, notwithstanding she had vomited considerably before I saw her. I accordingly gave her ten grains of the sulphate of zinc, which soon had its effect. I then gave her a weak solution of the carbonate of pot-ash, about a scruple to a pint of warm water. She retained the first I gave her but a short time on the stomach, but by the continuance of the solution she soon retained it better. She took, within three quarters of an hour, three pints of this solution, which checked her diarrhœa, and the pains of her stomach and bowels became quite easy. I then directed her sweet oil and milk, with the proportion of two-thirds of milk to one of oil, and a wine-glassful of this to be taken every half hour.

Finding her now much better, I ventured to leave her. I called the next morning, and found her walking about her room. I asked her how she did: she said she was free from pain, but felt very weak, and complained of soreness of the

stomach. I advised her to be very cautious what food she took into her stomach—to take no meat, but a very light diet, and in small quantities—such as barley-water, thin gruel, or thin chicken broth. By continuing this method for a few days she was restored to health.

From yours, with respect,

S. BARNUM.

ARTICLE XIII.

REMARKABLE CASE *of the* SUCCESSFUL APPLICATION *of* ELECTRICITY: *In a Letter from* JOHN VINALL, *Esq. to Dr.* S. BROWN, *of Boston. Communicated to Dr.* MITCHILL.

Boston, December 3, 1800.

DEAR SIR,

AGREEABLY to your request, I shall now give you a particular relation of a remarkable cure performed by electricity.

In July, 1790, I visited a young woman about twenty years of age, at the request of her physician, who was of opinion that electricity remained the only application untried, as her disease had baffled all other remedies.—Her case was as follows:

Some time in May, 1790, she was suddenly seized with extraordinary pains in her head, back and limbs. Medicines were administered by an able and judicious physician, but without effect; and her disease increased so rapidly as entirely to deprive her of sight and speech. Her hearing was likewise so much impaired, that it was with great difficulty she was made to hear the human voice. Her tongue was so greatly affected as to be useless to her. She had almost an entire locked jaw; for only a small part of a table-spoon could be introduced between her teeth, to convey the liquid she took into her stomach. Add to these dangerous symptoms, her right arm was without sensibility, and almost the whole of her right side. She had likewise a distressing constriction in her throat and chest, which greatly impeded respiration. She could take no nourishment except small quantities of liquids. She had continual fainting fits, and often appeared as if she would never revive. She had, for several months previous to her illness, a total suppression of the catamenia.

In this situation I found her, and was in great doubt whether an electrical application would answer any good purpose: but, at the earnest solicitation of her mother, I made the experiment—

First, by passing two light shocks through her paralytic arm; then two of the same strength through her lungs, from her right hand to her left. Immediately after the second shock through her lungs, she made signs to her mother that the distress in her throat and chest was relieved. This encouraged me to proceed. I then gave her an universal shock through the spinal marrow, of double the strength of the former shocks. After this I was preparing to apply the electric fluid to her right arm; her sight, I found, was so far restored by the foregoing applications, that she perceived my intention by the director which I brought towards her arm; she spake articulately, for the first time for a month before, and begged that I would not proceed. Accordingly I desisted at that time.

Her speech continued, attended with a considerable degree of stammering. The next day I visited her again, and, after going through an electrical operation as before, only with some little variation, her speech was entirely restored.

I attended the young woman for six or seven days, varying the force of the shocks according to her strength. Found a further attendance unnecessary, as her sight was as good as before her illness; her hearing perfect. The paralytic parts of her body recovered their tone, and all the functions of the body were in a natural state, though she was weak and debilitated. In a few months after she recovered her health perfectly, and was afterwards married, and had several children.

I am, dear Sir,

Your friend and humble servant,

JOHN VINALL.

ARTICLE XIV.

CASE *of* IMPERFORATED ANUS: *Communicated by Dr.* JOHN P. CAMPBELL, *to Dr.* SAMUEL BROWN, *of Lexington, Kentucky.*

NOVEMBER 23, 1800, I was called to visit the child of Mr. Hutson, in the vicinity of this place, on the second day after the birth. The case was an imperforate anus. As

an operation was inevitable, the next day was determined upon for that purpose. On the third day, when I went to operate, the child was very fretful and uneasy—the abdomen was much distended and discoloured—and, from the information of the nurse, the fæces had been frequently vomited up through the day. I began the operation by making a longitudinal incision on the place where the anus should have been, which was slightly marked by nature. This incision I extended in the direction of the os sacrum, with a lancet, until that instrument could be no longer serviceable; and no fæces following it when withdrawn, I introduced the scalpel, and carried it up in the same direction until I had the pleasing sensation of having reached a cavity. The instrument was withdrawn, and the meconium flowed plentifully. The child was placed in a warm bath up to the middle, for a few minutes; and after this a tallow bougie being introduced to keep the orifice open, the little sufferer dropped into a pleasant sleep. The bougie and warm bath were continued but a few days, with the occasional use of some magnesia alba and rhubarb, till the child recovered, and every expectation to be derived from the operation was fully answered. At this time the child does well, and the mother assures me she observes nothing in its present condition different from that of others which she has already nursed. My only fear was that the sphincter muscle might be destroyed; but I am now convinced no inconvenience will ever result from that quarter.

JOHN P. CAMPBELL.

Flemingsburg, March 9, 1801.

N. B. It was a female child; and the length of the canula, which I ascertained by measuring the instrument, appeared to be about three inches.

REVIEW.

ART. I. *Some Account of the poisonous and injurious Honey of North-America. By* Benjamin Smith Barton, *M. D.* 4to. pp. 20.

HAVING waited some time since this essay came into our hands for its publication in the fifth volume of the Transactions of the American Philosophical Society, we have concluded to anticipate its appearance in that work, by giving some account of it here: and we do this the more readily, as we observe it was read before that respectable body as long ago as July, 1794, and because we are of opinion its contents ought to be made known without longer delay.

Honey, being a vegetable secretion, generally possesses somewhat of the flavour and other qualities of the plant which affords it. This nectareous juice, which is mostly, in cultivated countries, so agreeable to the taste, and so friendly to the constitution of man, is not *always* distinguished by those palatable and nutritive properties. It sometimes operates as a cathartic, when freely eaten; and in some persons of unusual idiosyncracies it has been known to excite great uneasiness, and violent griping pains. But these are not the noxious consequences resulting from the reception of honey into the stomach, treated of in this memoir.

In South-Carolina, Georgia, and East-Florida, it seems, more accidents have happened from eating poisonous honey than in any other parts of North-America. This liquid is generally collected by the *wild* bees—the descendants of the swarms of the *apis domestica* first carried there by the Spaniards. A presumption naturally arose, that in the flowery ranges and savannas, where the wild honey of this region was prepared and collected, there must be more wild plants, imparting to it injurious qualities, than grow on arable land, or in places less favourable to the vegetative functions of those species. Upon investigating the subject, this is found to be the fact. The plants affording poisonous nectareous secretion are, 1. The *kalmia angustifolia*, or dwarf-laurel, concerning which Dr. Barton relates the following occurrence:

"About twenty years since, a party of young men, solicited by the prospect of gain, moved, with a few hives of

bees, from Pennsylvania into the Jersies. They were induced to believe that the savannas of this latter country were very favourable to the increase of their bees, and, consequently, to the making of honey. They accordingly placed their hives in the midst of these savannas, which were finely painted with the flowers of the *kalmia angustifolia*. The bees increased prodigiously, and it was evident that the principal part of the honey which they made was obtained from the flowers of the plant which I have just mentioned. I cannot learn that there was any thing uncommon in the appearance of the honey; but all the adventurers who ate of it became intoxicated to a great degree. From this experiment they were sensible that it would not be prudent to sell their honey; but, unwilling to lose all their labour, they made the honey into the drink well known by the name of metheglin, supposing that the intoxicating quality which had resided in the honey would be lost in the metheglin. In this respect, however, they were mistaken. The drink also intoxicated them, after which they removed their hives."

2. *Kalmia latifolia*, or great laurel, one of the most beautiful flowering shrubs of the American woods, growing plentifully in the middle and northern States. 3. *Kalmia hirsuta*, a pretty little shrub growing in the southern States. 4. *Andromeda mariana*, or broad-leaved moorwort. As these are very plentiful in many of the American forests, their blossoms afford much honey for the wild bees.

Dr. B. further thinks it will be found that other plants yield unwholesome honey—such as, 1. *Rhododendron maximum*, or Pennsylvania mountain laurel. 2. *Azalea nudiflora*, or wild honeysuckle. 3. *Datura stramonium*, or stinkweed. But on these further observations ought to be made.

The learned author next quotes from the ancients the information left concerning poisonous honey by Dioscorides, Pliny, Xenophon, and Diodorus Siculus; and, by the assistance of Tournefort and his own excellent botanical judgment, endeavours to ascertain from what plants it was collected. He then shows, by references to the Georgics of Virgil, that there is classical authority to show that the Romans had an idea of the hurtful qualities of several plants to bees.

The symptoms produced by eating deleterious honey are thus described:

"The honey which I call deleterious or poisonous honey, produces, as far as I have learned, the following symptoms or

effects: viz. in the beginning, a dimness of sight, or vertigo, succeeded by a delirium,* which is sometimes mild and pleasant, and sometimes ferocious; ebriety, pain in the stomach and intestines, convulsions, profuse perspiration, foaming at the mouth, vomiting and purging; and, in a few instances, death. In some persons a vomiting is the first effect of the poison. When this is the case, it is probable that the persons suffer much less from the honey than when no vomiting is induced. Sometimes the honey has been observed to produce a temporary palsy of the limbs; an effect which I have remarked in animals that have eaten of one of those very vegetables† from whose flowers the bees obtain a pernicious honey."

"Death is very seldom the consequence of the eating of this kind of honey.‡ The violent impression which it makes upon the stomach and intestines often induces an early vomiting or purging, which are both favourable to the speedy recovery of the sufferer. The fever which it excites is frequently relieved, in a short time, by the profuse perspiration, and, perhaps, by the foaming at the mouth. I may add, that as the human constitution resists, to an astonishing degree, the effects of the narcotic and other poisonous vegetables that are best known to us, so we need not wonder that it also resists the effects of the deleterious honey which is procured from such vegetables."

"It deserves to be mentioned, that the honey which is formed by two different hives of bees in the same tree, or at a little distance from each other, often possesses the most opposite properties. Nay, the honey from the same individual comb is sometimes not less different in taste, in colour, and in its effects. Thus one stratum or portion of it may be eaten without the least inconvenience, whilst that which is immediately adjacent to it shall occasion the several effects which I have just enumerated."

The noxious plants of our farms, gardens, fields and forests, are all of them worthy of being known, as well they that are

* "An intelligent friend of mine related to me the case of a person who, for a short time, was severely affected from the eating of wild honey, in Virginia. He imagined that a person seized him rudely by one arm, and then by the other. After this he fell into convulsions, from which, however, he recovered in about an hour. It was imagined that this honey was obtained from a kind of poisonous mushroom."

† "The kalmia latifolia."

‡ "We shall afterwards see that not one of Xenophon's men died from the deleterious honey which they had eaten, in large quantities, on the shores of the Euxine Sea."

directly and disgustingly venomous, as those which poison under the disguise of sweetness and innocence. The practical inferences to be derived from Dr. B.'s inquiries on this subject are, that the four first-mentioned plants, *known to furnish* unwholesome honey, should be extirpated in the neighbourhood of apiaries; that the honey procured from the three enumerated in the second place *as suspicious*, should be carefully examined to settle the fact with regard to them; and that observations be made on other plants—such, for example, as tobacco, poppies and buckwheat, with the view of ascertaining the precise qualities which the nectareous secretion of these respectively possesses. By becoming thus acquainted with the plants affording injurious honey, and being taught to avoid them, we shall have taken an important step towards the further knowledge of those from which good and well-flavoured honey is procured. We should be glad to see a list of such indigenous vegetables, arranged in the order of their excellence, from clover, or whatever other plant affords the most excellent honey, to that which furnishes the poorest, short of actual noxiousness. And, from a hint dropped by the author, we are led to hope he will one day give such a catalogue.

"Tantus amor florum, et generandi gloria mellis."

ART. II. *Observations on the Arguments of Professor* Rush, *in favour of the inflammatory Nature of the Disease produced by the Bite of a mad Dog. By* James Mease, *M. D.* 8vo. pp. 62. *Philadelphia.* Young. 1801.

WE know of no disease which ranks higher among those which are considered as opprobrious to medicine than Hydrophobia, produced by the bite of a rabid animal. It would be rash to assert that it has never been successfully treated; but there seems to be good ground to believe, that none of the remedies hitherto employed can lay claim to probable efficacy, and that it is perfectly warrantable, in the present state of knowledge, rather to follow the lights of analogy and conjecture in pursuit of new remedies, than to persist in the use of such as are proved to be incompetent and fruitless. In addition to the respect which the intrinsic merits of this pamphlet inspire, we applaud the author for the constancy and spirit he exhibits in still advancing on the *forlorn hope* of this medical contest with hydrophobia. The laurel of victory and

the gratitude of mankind will be well bestowed upon him who shall enable us to triumph over this direful distemper.

Dr. Mease, some years ago, adopted the opinion, then taught by Professor Rush, that hydrophobia, like tetanus, was a disease of relaxation and debility, and to be treated with tonic and stimulant remedies. In the further prosecution of his inquiries, the Professor abandoned that opinion, and now believes the disease in question, like malignant fevers, to result from excess of action, and to demand a bold use of depleting remedies. The reasoning which effected this change of opinion in Professor Rush, produced no conviction on the mind of our author; and the object of the present publication is to vindicate his adherence to his former principles.

In the course of the discussion, Dr. M. follows Professor Rush through a long train of argument, sometimes questioning the authenticity of his facts, and sometimes combating the inferences drawn from them. In opposition to the doctrine which the Professor had endeavoured to establish, that the disease of all rabid animals is of the nature of a malignant fever, Dr. M. insists that, in many important particulars, the analogy contended for is not sufficiently close and constant; and that, although some circumstances of rabies resemble malignant fever, there are other leading ones in which no such affinity can be traced.

Professor Rush had also maintained that the disease in the human species, produced by the bite of a rabid animal, is a malignant fever. This he supposed to be proved by the similarity of the symptoms; by the accession of the disease at various intervals after the reception of the infection into the body; by similar appearances of the blood drawn from persons labouring under the two diseases; by the agreement between them in point of duration; by the equally rapid putrefaction of bodies dead of both diseases; and by the discovery of like appearances in such bodies, when examined by dissection.

In reply to this doctrine of analogy between hydrophobia and malignant fever, as manifested by the circumstances of the two diseases in the human system which have just been mentioned, Dr. M. contends, that if the similarity of symptoms, to a certain extent, be admitted, there still exists a dissimilarity of symptoms in many important particulars, which brings the disease in question to a nearer resemblance of what are called *nervous* than *febrile* affections; that, as to the interval between the application of the remote cause and the attack of the disease, Professor Rush's analogy must be acknowledged to fail,

as hydrophobia from canine virus, unlike malignant fevers, has been known to come on at all intermediate periods between ten days and nineteen months after the infliction of the bite; that appearances of blood drawn in diseases are too variable and fallacious to afford any dependence, and that, even if they deserved any degree of reliance, there is still a deficiency in the proof of the appearances insisted upon by Professor Rush; that mere sameness of duration, if admitted in the fullest degree, is too loose an analogy to allow any inference of moment to be drawn from it; that the rapid putrefaction of bodies dead of hydrophobia, though by no means an universal occurrence, is yet so common in cases of sudden death without loss of much blood, as to justify no such conclusion as that which Professor Rush attempts to draw; and that, as to the similarity of the phenomena exhibited by dissections, which are admitted in some degree, but which Dr. M. supposes to be stated in too strong and unqualified terms, they may be accounted for on the principle of the irregular distribution of blood and of nervous influence, which remarkably takes place in this disease, and in some other analogous nervous affections.

Notwithstanding these plausible objections to Professor Rush's doctrine of analogy between hydrophobia and malignant fevers, we are persuaded that a view of the whole phenomena will go far to confirm such an analogy. We are also convinced that the appearances of bodies dead of these diseases, as laid open by dissection, do often warrant the same conclusion. Two instances of hydrophobia from canine virus, which lately occurred in this city, are cases in point. Besides the general similarity of their aspect to malignant fevers, in one of them black-vomiting, exquisitely characterized, was frequent during many of the last hours of life, and the stomach, on dissection, was found to be deranged in the manner commonly described after malignant fevers; and in the other, an unusual yellowness of the skin, with livid spots interspersed, was observed after death. In the latter case a dissection did not take place.

Dr. M. proceeds, in the next place, to examine the validity of Professor Rush's proofs of his theory, derived from the cure of the disease by blood-letting. After a careful examination of the cases, as described by the reporters of them, he suspects that many of them were in reality other diseases, mistaken by the observers for hydrophobia from the canine virus; and that, as to the rest, the use of many other remedies

at the same time makes it doubtful how far the cure was to be ascribed to blood-letting. It is difficult, and perhaps impossible, in the present state of our knowledge of this disease, to determine how far blood-letting may be directly useful or pernicious, and how far it should be employed as auxiliary or rejected as detrimental to other remedies. That it has been used to a great extent, in a multitude of cases, without any apparent advantage, is abundantly evident. And, upon the whole, we are disposed to believe, from many phenomena of the disease, as well as from its general want of success, that this remedy, used alone or in combination with others, in any manner hitherto distinctly known, may be properly placed on the long list of those which experience has adjudged to be ineffectual in the treatment of hydrophobia. How far its powers may hereafter be efficaciously applied as preparatory or relative to other remedies, we presume not at present to decide.

The method of cure which Dr. M. is disposed to recommend follows next in order. In his former essay on this disease he had recommended the use of opium in very large doses; but, from some examples of its inefficacy in the largest doses, he now thinks it unavailing to trust in that remedy. "In its place (says he) I would recommend the use of the powdered leaves of stramonium,* or their extract, in doses of two grains for an adult. By that quantity Dr. Cooper† found the pulse 'increased in frequency at first, and that it afterwards became full and quick, and produced giddiness, *warm skin*, moist hands, and *sleepiness*.' A defect of due energy in the heart, wakefulness, and cold skin, are symptoms that constantly attend the disease, and the two last are the sources of much distress. Hitherto no remedy has had the least effect in removing them. Their cure will greatly assist toward the removal of the whole complaint. This may be effected, in my opinion, by the *stramonium*, if given *early* in the disease. It should be exhibited in such doses as will *powerfully affect the system*, and repeated as often as a previous dose has ceased to act. During the suspension of the symptoms, bark and wine ought to be given, and the dose gradually increased, so as to keep up a regular excitement, and produce a permanent vigour in the system. The quantity of wine may be unlimited. Indeed, the only rule that ought to be observed with respect to it is,

* Thorn-apple, or Jamestown-weed.

† Inaug. Dissert. 1797.

to *give it in as large quantities as the stomach will bear, and until it produces the desired effect.*

"In case, however, the above remedies cannot be obtained or exhibited, I should have no hesitation in trying another plan, which has several arguments to authorise the experiment, although, at first view, it may appear to be attended with danger. It is, *to excite a strangury by means of cantharides.*

"The principle of the animal economy, first unfolded by J. Hunter, of one irritation curing another, is daily and amply confirmed in practice, and its application in the present disease seems highly probable. Without referring to the many instances afforded, in illustration, I may adduce one disease which is nearly allied to the present, viz. tetanus. When this is occasioned by the lesion of a nerve from a rusty nail, or other pointed instrument, we find it readily yields to an irritation of the wounded part, raised by scarification, and the application of hot turpentine, marine salt, or cantharides; and in the progress of the disease, or when it succeeds the exposure of the body to dews and night air, after being heated in summer, an irritation of the salivary glands by mercury as readily proves effectual. A knowledge of these facts, and a conviction of the truth of the principle would have been sufficient to prevent my hesitating to try the plan I propose; but I am now confirmed in my opinion of its utility and perfect safety, in consequence of the cure, by its use, of a desperate case of tetanus, by Dr. S. Brown, of Lexington, Kentucky, who lately communicated the history to Dr. Rush. The patient, a lady, was nearly exhausted by the disease, when her judicious physician gave her the tincture of cantharides, which, by exciting a temporary inflammation in the stomach and bowels, and producing a strangury, effected a cure. The most dangerous pleurisies have also been cured by the late Dr. Lieper, of Maryland, after the common remedies had failed, by exciting a strangury by means of the same tincture mixed with camphorated spirits of wine;* and, when combined with tincture of Peruv. bark, and given with the same view, it has been recommended by experience in the hooping-cough."†

"The recommendation of the remedy in this disease produced by the bite of a mad dog is not new. Morgagni mentions its general use for the cure of the disease in Germany; his remark is confirmed by a late author.‡ A Silesian peasant

* "Rush's Works, vol. iv. p. 35.
† "Lettsom's Mem. Lond. Dispensary.
‡ "Diss. de Hyd. Auct. G. Uiberlacher, of Vienna.

also acquired much reputation for the cure of the disease, and on the purchase of his secret by the King of Prussia, in 1777, the basis was discovered to be the *meloë proscarabæus et majalis** (oil beetle). All the insects of the meloë tribe possess a blistering quality. In a disease which has hitherto so generally proved superior to all the efforts of medicine, it is a duty to try every plan which promises the least success. The one I now urge is supported by a just theory, a close analogy, and, if we admit the German authority, I may add, is proved by experience."

It must be matter of regret to every inquirer on this subject to find so little hitherto satisfactorily known. The author of these Observations, after all his ingenious and diligent investigation of the disease, is compelled, like those who had gone before him, to found the treatment of it chiefly upon conjecture and analogy. We would still, however, recommend the subject to his further examination—hoping that he may yet, before long, be able to recall the public attention to it, under the direction of new views and happier auspices.

ART. III. *Introduction to a Course of Lectures on Natural History, delivered in the University of Pennsylvania, November* 16, 1799. *By* Charles W. Peale. 8vo. pp. 28. *Philadelphia.* Bayleys. 1800.

ART. IV. *Discourse introductory to a Course of Lectures on the Science of Nature, &c. delivered in the Hall of the University of Pennsylvania, November* 8, 1800. *By* Charles W. Peale. 8vo. pp. 50. *Philadelphia.* Poulson. 1800.

NATURAL History is a branch of science for the learning of which provision has been made in the University of Pennsylvania, and few of our readers need be informed that the business of imparting public instruction on the subject has been intrusted to Professor Barton. The frequent and respectful mention of him in the course of our work, and the accounts therein contained of his labours and publications, must be fresh in their recollection. And although he has done so much to enlarge the Natural History of America, they have good reason to expect more; for industry and talents like his will ever be engaged in something laudable.

* "See C. T. Schwarts de hyd. ejusque specifico meloë majali, et proscarabæo. Halæ 1783. Tilloch's Phil. Mag. vol. vi.

But, notwithstanding the chair of Natural History in that seminary is so ably filled, we learn from the two pieces before us that there is another Lecturer in Philadelphia, who has delivered Discourses in the hall of the University, on something of the same kind. This is Mr. Charles W. Peale, well known as the proprietor of the largest collection of Natural History in Philadelphia, or perhaps in the United States.

The account Mr. P. gives of himself and of his Museum is this:—His original occupation was portrait-painting, by which, if he had steadily pursued it, he might have grown wealthy. He, however, in the ardour of patriotism, became negligent of his profession, and directed his attention zealously to the politics of his country. But, at length, growing weary of political warfare, he determined to select some private and peaceful pursuit, and after pondering maturely what it was best for him to do, resumed his pencil, and painted a collection of the portraits of men who had distinguished themselves in the American revolution. Having made considerable progress in this undertaking, he was prevailed upon by one of his friends to exhibit, in a corner of his picture gallery, some bones of the Mammoth, then recently discovered, and attracting admiration. From this beginning, first under the countenance of some respectable characters, and afterwards by the voluntary contributions of individuals, as well as by his own unremitted exertions, and without the aid or patronage of any Legislature whatever, has Mr. Peale's collection of natural objects been increasing until this time, and growing to its present large and interesting size.

After having been many years engaged in collecting and arranging the different natural productions which came into his possession, and in describing and explaining them to the persons who visited his Museum, Mr. P. seems to have entertained an opinion that he might be employed, agreeably to himself, and, perhaps, to others, by delivering regular lectures or discourses on a department of knowledge he had cultivated so long. The scheme of instruction, therefore, attempted by him, appears to have a particular reference to his own collection, and not to be undertaken upon the broad and scientific plan which distinguishes a university-course. It may thus be understood wherefore he was liberally permitted to deliver his lectures in the college hall, and to disclose whatever he knew of Natural History, and that this might be done without interfering with the regular and systematic labours of the Professor.

The lecturer laments his having begun to attend to Natural History at a late time of life. He informs his hearers that he never attended lectures on the subject, and that he has read very few books. From these confessions our readers will naturally form a judgment of the author's genius and turn of mind, and anticipate any opinion of ours, by concluding, that with the best intentions, and the most lively zeal for cultivating Natural History, Mr. P. has laboured with remarkable success; but that his great excellence consists rather in collecting, preserving, and exchanging specimens, than in philosophizing upon them.

When we consider that Mr. P.'s Museum contains specimens, in good preservation, of many of the quadrupeds, birds, amphibia, shells and insects of America, conveniently arranged, and reflect how necessary it is to a student of Natural History to have the real objects before him, we are led to conclude that this collection affords many advantages to the zoological inquirer. And, as far as his fossils extend, the study of Mineralogy may be, in like manner, promoted.

For the work of gathering from their scattered sources the natural productions of America, and exchanging a part of them for the proper specimens of the other parts of the world, the writer of the pieces before us seems eminently qualified, and, indeed, to stand without a rival. In this we wish him prosperity; and in this wish we are the more earnest, since an untimely death, in 1798, bereft us of Mr. Baker, whose distinguished taste and singular enterprize had been manifested in a handsome cabinet of curiosities at New-York.

The style of these Lectures is very plain, and the matter miscellaneous and desultory. We, however, select one passage, which so delightfully shows the effect of scientific pursuits to civilize the mind, and subdue its fiercer passions, that *on these accounts* they deserve the highest encouragement. Speaking of his Museum, he says—

"One very important effect may be produced: Persons having different sentiments in politics, being drawn together for the purpose of studying the beauties of nature, while conversing on those agreeable subjects, may find a concordance of sentiments, and, most probably, from a slight acquaintance, would think better of each other than while totally estranged. An instance of this is in the memory of many of my hearers. The chiefs of several nations of Indians, who had an hereditary enmity to each other, happened to meet unexpectedly in the Museum in 1796. They re-

garded each other with considerable emotion, which in some degree subsided, when, by their interpreters, they were informed, that each party, ignorant of the intention of the other, had come merely to view the Museum. Never having before met but in the field of battle, where the recollection of former scenes of bloodshed only roused the spirit of revenge, no room was left for the feelings of the social man. Now, for the first time, finding themselves in peace, surrounded by a scene calculated to inspire the most perfect harmony, the first suggestion was—that as men of the same species they were not enemies by nature, but ought for ever to bury the hatchet of war.

"After leaving the Museum they formed a treaty so far as their powers extended; and wishing the white people to be witnesses to the sincerity of their intentions, at the request of the Secretary at War I supplied them with a room. Sixty-four chiefs of eight or ten nations met: they heard a speech sent by General Washington, recommending peace. Their orators spoke, and they departed friends.

"Quarrels in politics are something like those in matrimony, almost always about trifles; seldom on things of consequence: each comparing their notes with candour, their differences are soon settled."

ART. V. *A Treatise on the Human Teeth, concisely explaining their Structure, and Cause of Disease and Decay: To which is added, the most beneficial and effectual Method of treating all Disorders incidental to the Teeth and Gums; with Directions for their judicious Extraction, and proper Mode of Preservation: Interspersed with Observations interesting to, and worthy the Attention of every Individual. By* R. C. Skinner, *Surgeon Dentist.* 8vo. pp. 26. *New-York.* Johnson *and* Stryker. 1801.

TRAVELLERS from Europe have long remarked the frequency of decayed teeth in America. They have wondered what there was in the climate of the western world, or in the constitution of its white inhabitants, so unfriendly to these organs of mastication. And they seem generally to have thought it a token of the degeneracy of the race of transatlantic emigrants. Some of their philosophers had persuaded them that animal life was not so vigorous and thrifty in the new world as in the old; and the premature loss of their teeth ap-

peared to those speculative gentry an indication of the puny and debilitated habits of the colonial descendants. But these were only effusions of learned and visionary pride, and no considerate zoologist or well-informed naturalist heeds them any more.

Without, however, ascribing it to the unfavourableness of the climate, or to a dwindling of the race of men who dwell in it, there is very good evidence of the fact, that bad sets of teeth have been heretofore very common. Attempts have been made to account for this from the variableness of the seasons, the sudden transitions of the weather from hot to cold, and from moist to dry—the frequency of catarrhal and rheumatic affections, and, consequently, of inflammatory diseases in the throat and jaws, and spreading thence to the teeth. That these causes have an extensive operation there can be no doubt. Pains in the upper and lower maxillary bones are frequent subjects of complaint. Inflammatory affections of the face are sometimes very violent; and the teeth partake deeply of these disorders of the neighbouring parts. As the bony portions of the teeth are furnished with blood-vessels, they are, of course, subject to inflammation, suppuration, or caries, like other vascular organs. From such *internal* causes are the teeth subject to inflammation and decay. And it is presumable they more frequently occur in our variable situations than in the more equable and temperate regions of the globe.

But the teeth of human beings suffer *external* as well as *internal* injuries. They may be broken by *mechanical* force, and worn away by attrition; or *chemical* agents may corrode them, and spoil their structure. The latter is the more common occurrence; and, under the disorganizing operation of active solvents, the stony covering of the teeth disappears. Our readers will turn to our Med. Rep. vol. ii. p. 451, 1st edit. for a full statement of the facts connected with the external decay of the teeth. It is there remarked that these bony excrescences consist chiefly of phosphoric acid and lime, and are, of course, phosphates of lime. Several acids have a stronger attraction for lime than the phosphoric acid has: consequently, when these acids—such as the acids of sugar, tartar, sulphur, &c. come in contact with the teeth, they decompose the enamel, by combining with the lime and discharging the phosphoric acid. In proportion as these acids are applied to the teeth frequently and long, will their enamel be more quickly or slowly eaten away. The most common and de-

structive of the acids is produced within the mouth itself, from the remains of lean meat, bread, and other substances, sticking between the teeth, and settling near their junction with the gums. This is the SEPTIC ACID, which, if not neutralized or washed away, will, within a foul mouth, do irreparable damage in a short time.

The case is different when alkalies come in contact with the teeth. The phosphoric acid has a stronger attraction for lime than for alkalies; therefore no destruction of the teeth can be wrought by this class of substances. While they are thus perfectly safe from injury by alkalies, the corrosive acids by which they are often beset and surrounded are neutralized and rendered innoxious. On this principle it is that a correct theory of their *external* diseases may be formed, and proper methods of prevention devised. (Med. Rep. vol. ii. p. 454, 1st. edit.)

The author of the piece before us is by profession a dentist, and his object is to communicate information concerning the natural situation of the teeth, their diseases, the remedies for these, and the means of prevention; together with such chirurgical operations, and other artificial expedients, as his experience has led him to believe are useful. His description of the anatomical structure of the teeth and their sockets contains nothing new: nor do we find any thing peculiarly striking in his account of their diseases. Yet as tooth-drawing is an operation to which most persons, at some time of life, are obliged to submit, we think it may be acceptable to our readers to lay before them Mr. Skinner's practical directions for extraction in his own words: (p. 20.)

"The various construction and situation of the teeth require instruments of various forms, applicable to their construction and situation. The judicious experienced operator is abundantly supplied with these, and when a case occurs that requires his professional assistance, he knows how to select and apply such as are adapted to the case advantageously. On the contrary, the uninformed *would-be operator* seldom possesses, or knows the use of any other instrument than a common turn-key, which he applies in all cases, and with his herculean strength *murderously turns out*, either some part of the tooth, or a large piece of the jaw-bone, and too frequently two or three sound teeth. A tooth ought invariably to be drawn in the direction of its own axis; or, in other words, in a straight direction from its natural situation, which gives but little pain, and obviates accidents. A tooth stands in the jaw something similar to a wooden wedge drove [*driven*] firmly into a stick

of wood, which, by moving in any other direction than straight forward, will inevitably either break the wedge and leave the point within the stick, or split out one side or the other of it; but by moving the wedge in a straight direction, avoids both one and the other; and so vice versa the teeth. In extracting a tooth, the operator should always first thoroughly separate the gum from the tooth with a gum lancet. The selection of the extracting instrument must depend entirely on the judgment of the operator: it ought always to be adapted to the *construction,* [shape?] *size,* and *situation* of the tooth that is to be extracted. In all cases, however, a tooth ought to be drawn straight forward, and never, on any consideration whatever, should it be drawn laterally, or *turned out.* This may be easily effected by an operator that possesses the instruments and understands the proper method. The extraction of a tooth should never be very sudden or quick. The patient should be placed either on a high or low seat (as the case requires) when the instrument is applied to the tooth; and before an attempt is made to draw, the operator should feel that he has a firm, secure hold of it: satisfied of this, he must then draw steadily in a straight direction of the natural position of the tooth; and if the strength of his right arm is insufficient to effect its removal, his left must assist. When an upper molaris or grinder is to be extracted, the patient should be placed or seated very low, with the head resting upon the operator's knees. If an under one is to be removed, the patient should be placed on the height of a common chair, and the head placed upon the operator's breast, who should firmly and securely clasp it with his left arm. These positions effectually secure the patient from struggling, and thereby retarding or preventing the successful completion of the operation—brings both the operator's hands in front of the patient's face—enables him to apply the strength of both, if necessary, and consequently to remove the tooth, in the direction before mentioned, with ease, safety and success. If an incisorius or caninus is to be extracted, the patient must be placed in the same situation as for the removal of the molares, with the difference of reversing the positions. But a front tooth ought never to be extracted unless an abscess is formed at the root of it. A judicious operator can always ascertain this, from circumstances and external appearances. A tooth with one fang or root, that gives pain from any other cause than an abscess, can easily be cured and rendered serviceable oftentimes during a person's life.

"If a front tooth is extracted, it generally produces a con-

traction of the parts from whence it was removed, and, consequently, draws the mouth partly on one side. Independent of this circumstance, it would be bad practice to extract a front tooth, or stump, because it would remove and destroy that solid base indispensibly necessary for the firm security and masticating use of an artificial tooth, which may be set to very great advantage where there is a solid stump standing."

The pamphlet concludes with announcing the author's dentifrice and tincture for preserving the teeth and gums, and the various operations which he performs, with their prices. We refer those who desire particular information on the latter of these subjects to the publication itself. And as to the former, knowing, as we do, that this tooth-powder is a composition of *alkaline* and *calcareous ingredients*, very finely levigated, we are of opinion it may be serviceable in overcoming the injurious acids by which the teeth are assailed, and of keeping them in a clean, sound, and beautiful condition.

ART. VI. *Medical and Physical Memoirs, containing, among other Subjects, a particular Inquiry into the Origin and Nature of the late Pestilential Epidemics of the United States. By* Charles Caldwell, *M. D.* 8vo. pp. 296. *Philadelphia.* Bradfords. 1801.

HAVING, in our last number, examined Dr. Caldwell's "Address to the Philadelphia Medical Society, on the Analogies between Yellow Fever and True Plague," which, though not bearing the denomination of a memoir, is to be considered as belonging to the collection included in the volume before us, we now proceed to consider the four memoirs which form the remainder of the work.

The first memoir exhibits "A Physical Sketch of the City of Philadelphia, interspersed with general remarks, applicable to all large and populous cities." The second contains "Facts and Observations relative to the Origin and Nature of the Yellow Fever, addressed to the Citizens of Philadelphia." The third is "On the Winter Retreat of Swallows." And the fourth is devoted to "Strictures on Dr. Barton's Memoir concerning the Disease of Goitre, as it prevails in different Parts of North-America."

The subject of the first memoir, viz. "A Physical Sketch of the City of Philadelphia," &c. is treated in a manner which makes it interesting not only to the physicians and inhabitants

of that city, but, in a great degree, to those of all other large and populous cities, and especially to such as have many circumstances in common with those of Philadelphia. We perfectly agree with the author in the necessity of an accurate acquaintance with the topography of the places visited by pestilential diseases, in order to form a correct opinion of the origin and nature of such diseases. The progress of medicine has been greatly retarded by inattention to this point. If to the knowledge we possess of the ravages of pestilence at Constantinople, Aleppo and Grand-Cairo, as well as among armies and other forms of crowded population in the countries adjacent to these cities, had been added a minute topographical account of such places, with a description of diet, dress, and other modes of living, our acquaintance with the epidemics of the east would have been infinitely more exact and profitable than we now find it. In all probability the doubts still entertained on this subject will vanish as soon as the information before-mentioned is satisfactorily obtained. Physicians are growing sensible, at length, of this desideratum; much has been already done to supply it; and we are happy to find Dr. Caldwell so commendably labouring in this plan of reformation.

In the first section of this memoir Dr. C. treats of the climate of Philadelphia, and its effects on the human system. He thus describes it:

"Philadelphia, like every other large and populous city, possesses a factitious climate of its own, different from the climate of the surrounding country. This difference, in summer, is equal to that resulting from a difference of several degrees of latitude. In winter, I believe (though of this I will not speak confidently, having made but few comparative experiments on the subject), the atmospheres of the city and country are more nearly alike in point of temperature.

"The summer climate of Philadelphia, and of other large cities similarly situated, is an artificial torrid zone, in which the thermometer rises from four to six degrees higher than it does at the distance of a few miles in the country. The causes of this superior degree of warmth in a city atmosphere appear to be the following:

"I. The heat given out from numerous and crowded fireplaces.

"Each fire in the city communicates its heat to a certain distance around it. Hence the aggregate result of the whole must be considerable.

" II. Heat evolved by the process of fermentation in all its stages, the sources of which are much more abundant in the city than in the country.

" III. Heat thrown out by animal respiration and perspiration.

" The extent to which these functions go on in the city, compared to what occurs in an equal space of atmosphere in the country, is, perhaps, in the ratio of a thousand to one.

" IV. A less free circulation of air in the city than in the country atmosphere.

" Though this is not, in itself, a powerful cause of the actual evolution of heat, yet, by allowing the warmth of our own bodies, as well as that produced by adjacent objects, to be accumulated round, and to remain in contact with us, it proves a very fruitful source of the distress we experience from the summer temperature of the city.

" But farther, as rest is absolutely necessary to every stage of fermentation, there is reason to believe that air, when stagnated, is much more favourable to this process than when in a state of active motion.

" V. Less evaporation from the surface of the ground in cities than what takes place in the country.

" A deficiency of moisture in the earth, and a consequent deficiency of aqueous exhalation, are among the most powerful of those causes which co-operate in producing the extreme heats of the desert of Arabia, and of other sandy regions bordering on the line. But streets that are paved with flint, and overspread with dry dust, as is the case with the streets of Philadelphia in the summer season, are equally unfavourable for this cooling process.

" If, on the other hand, the dust were swept away, and the silicious stones exposed without a covering to the rays of the sun, instead of vapour carrying off heat in a latent state, nothing but reflected light, accompanied by sensible heat, would arise, to the great augmentation of the warmth of our atmosphere.

" VI. The last cause of the high temperature of city atmospheres, which I shall mention, is, perhaps, more powerful than all the rest. It is the many solid and opake substances in large cities that act on the principle of reverberating furnaces, by intercepting and reflecting the rays of the summer sun. Such, in particular, is the operation of the buildings and the pavement of the streets.

" In passing through a clear atmosphere, or any other trans-

parent medium, the rays of the sun produce no perceptible degree of heat. The case, however, is different as soon as they fall on an opake body. The surface of the intercepting obstacle becomes immediately heated, and communicates its warmth to the surrounding air.

"If, on being reflected from the first, the rays impinge against a second substance, this becomes in like manner an additional source of heat. A third point of reflection becomes a third source, so that the number of such sources will be in a direct ratio to the number of opake bodies against which the sun-beams strike, either by primary incidence, or subsequent reflection. But, as bodies of this description are, both in dimensions and number, greatly superior in cities to what they are in the country, the heat from this cause must consequently rise in something of a similar proportion.

"Nor is the nature of certain reflecting bodies in cities to be passed unnoticed in the present inquiry. Our glass windows, when struck obliquely by the rays of the sun, act as so many mirrors, by throwing them into the streets in a condensed state.

"To the foregoing causes may be added the state or constitution of a city atmosphere itself. Being more highly charged with heterogeneous substances than the atmosphere of the country, it is less transparent, and probably, therefore, by making some resistance to the passage of the rays of the sun, gives rise, on this principle, to a farther evolution of heat.

"Perhaps the truth of this observation can be best realized, and its force most readily felt, by taking, in the evening, a distant view of the atmosphere of a large city. In this way, the want of transparency in this body of air is rendered extremely obvious. The city appears to be enveloped, not, indeed, in a real cloud, but in a body of atmosphere so surcharged with smoke and other effluvia, as to be able to reflect a sufficiency of light to render itself visible.

"It is, no doubt, by viewing this phenomenon in times of pestilence (periods in which men's minds are unusually awake to observation), that weak and superstitious characters have been led to imagine large cities overhung, on such occasions, by clouds portentous in aspect, and manifesting the frowns of an offended Deity.

"Can the density of a city atmosphere act, in any measure, the part of a convex lens, and increase the temperature by a slight condensation of the rays of light?"

In the second section Dr. C. exhibits the situation and extent of Philadelphia, with their probable operation in the production of disease.

The third section contains remarks on such works of art in Philadelphia as appear to have an influence on the health of its inhabitants. Under this head Dr. C. takes occasion to examine the prevailing mode of constructing houses in this country, and censures it as an imitation of British customs, rather than an accommodation to the extremes of heat and cold to which we are annually subjected. He contends that the walls of our houses should be thicker, and the windows much smaller, and fewer in number, than common practice prescribes. There is no reason to doubt, that, on such a plan of building, our houses would be cooler in summer and warmer in winter. The effect of shutting up rooms during the heat of the day in summer, the coolness of subterranean apartments in the same season, and the warmth of them in winter, and, above all, the practice of whole nations inhabiting the warmer regions, seem to confirm our author's opinion. In the construction of cities Dr. C. thinks it proper that buildings should be lofty and streets narrow. If this were the case, the shade of the houses would protect the streets from the rays of the sun, and winds be rather quickened than retarded by the narrowness of avenues.

In the fourth section Dr. C. takes a view of the population of Philadelphia, with the mode of living, dress, customs and amusements of its inhabitants. With great reason, the habit of consuming large quantities of animal food, and of distilled and fermented liquors, in the summer and autumn, is condemned. In the diseases of these seasons it is well known that the abdominal viscera, more than other parts of the system, are liable to suffer from morbid determinations to them; and there can be no doubt that the author's opinion of the tendency of stimulating diet, by excess of excitement, to debilitate such viscera in an especial degree, is well founded. In this instance likewise Dr. C. laments that Americans have not been hitherto able to emancipate themselves from the tyranny of British habits, and to adopt a plan of diet suitable to the temperature and other circumstances of the region which they inhabit. Many other nations, whose pretensions to improvement are far inferior, have long since been taught, by experience, to avoid the evils which we suffer, and which our European prejudices alone induce us to cherish.

In the fifth section Dr. C. concludes this memoir by some general inferences and remarks, which are properly deduced from his preceding observations, and will, we are persuaded, appear to his readers to be judicious and interesting.

(To be continued.)

ART. VII. *Transactions of the American Philosophical Society, &c.*

[Continued from page 412 of vol. iv. and concluded.]

An Answer to Dr. Joseph Priestley's *Considerations on the Doctrine of Phlogiston, and the Decomposition of Water; founded upon demonstrative Experiments. By* James Woodhouse, *M. D. Professor of Chemistry in the University of Pennsylvania, &c.*

IT was our design, when we began the review of this volume of the Transactions of the American Philosophical Society, to give a particular account of this respectable paper. The place which it holds, however, in the order of the contents of the volume, has prevented our arriving at it so soon as we then expected. As it treats *of the constitution of metals—of the solution of iron in the diluted sulphuric and muriatic acids—of finery cinder or the scales of iron—of carbonic acid or fixed air—and of nitric acid*—it will be in the recollection of all our readers that the controversy on these subjects has been so essentially varied and narrowed by subsequent discussions, which have taken place between Dr. Priestley and Dr. Woodhouse in the Medical Repository, as to render it less proper at present to enter into an examination of this paper. It will be sufficient to observe that Dr. Woodhouse states the principal points in question between the phlogistians and antiphlogistians with great distinctness and candour; that he combats the opinions of Dr. Priestley with much force and ingenuity; and that, throughout the whole, as on other occasions, he manifests a degree of respect for his venerable opponent which reflects equal credit on the character of both.

An Essay on a new Method of treating the Effusion which collects under the Scull after Fractures of the Head. By J. Deveze, *Officer of Health, of the first Class, in the French Armies.*

The operation of the trepan is sometimes required to relieve that effusion between the dura mater and the scull, occasioned by injuries of the head. The difficulty of ascertaining precisely the spot where the effusion is accumulated, often makes frequent repetitions of the operation necessary.

To avoid this inconvenience, the author proposes to destroy the adhesion which unites the dura mater to the scull, and

establish a communication between the collected blood and the opening already made by the trepan. He relates a case where he performed this operation with a silver spatula, very flexible, the extremities of which were rounded. He took the precaution to press it towards the bone, and to bend the instrument by degrees as it was introduced, to make it take the form of the part upon which it acted; and often he drew it back, to measure, on the outside, the way it had made. At length he happily reached the part where the blood was collected, which flowed in great abundance, and the patient was soon relieved.

MEDICAL & PHILOSOPHICAL NEWS.

DOMESTIC.

PESTILENTIAL VIRUS GENERATED AMONG EMIGRANTS FROM IRELAND, AND OVERCOME BY ABLUTION WITH SOAP AND ALKALIES, AND BY VENTILATION.

WE have heretofore stated the difference that exists between *contagion*, which is a product of morbid secretion, and *infection*, which, without any vascular action at all, is engendered in certain inanimate substances by putrefaction. To the former of these belong the virus of small-pox, lues, vaccinia, and the like; and to the latter, the poison which induces fevers of various forms, as intermittent, bilious, malignant, pestilential, typhus, yellow, plague, and others. (Med. Rep. vol. ii. p. 314, 1st edit.) And we have stated it repeatedly as the result of all well-directed science, and all the valuable practice we knew on the subject, that wherever this poisonous offspring of corruption existed, it might be overcome by ablution, ventilation, soap, alkalies and lime. (Med. Rep. vol. ii. p. 361, 1st edit.) This season (summer 1801) has afforded new proof of their entire efficacy, without any of the fumigations with cedar-smoke, salt-petre-vapour, or muriatic acid gas, so warmly recommended in some of the modern publications.

Several ships which had carried flax-seed to Ireland returned in the months of June and July to New-York, crowded with needy and wretched emigrants from that island. They were so thick between decks that the air was deprived of its usual portion of oxygen, insomuch, that on bringing the sick passengers to shore, the common pure atmosphere was too stimulant for their lungs, and a number of them gasped in it, and died in a short time. There was so much animal excrement accumulated in one of the ships, that the health-officer detained her at the quarantine ground as poisonous and pestilential, and refused to let her come up to the city. By the pukings and purgings, and by the urinary and perspiratory discharges of these miserable creatures, literally wallowing in their own filth, the bodies of many of them were besmeared and incrusted, forming a layer of excrementitious grime from head to foot. Their clothing and their bedding were im-

pregnated with as much of these excrementitious matters as they could wipe from the bodies of the passengers and absorb. And with such coverings, vile, offensive and pestilential in the highest degree, were they surrounded. And these excrements, infesting every thing in the neighbourhood of the sick, underwent the usual chemical changes in a heat nearly or quite equal to the human body, and turned to septic acid, or to some other septic and poisonous matter, which forms the exciting cause of fever. Of the fever so excited, between thirty and forty from one ship died in crossing the Atlantic, and were thrown overboard. The survivors arrived in a state of uncleanness, sickness and want, seldom seen in America, but among the emigrants from that unhappy country, who make so large a number of the poor in American hospitals and alms-houses. So thoroughly contaminated with their own corrupting excretions were the clothes and beds of these sufferers, that the septic exhalations from them poisoned the air of the Marine Hospital on Staten-Island, and the medical attendants and nurses sickened in the discharge of their humane attentions.

The common opinion of physicians concerning this venomous matter is, that it is a *contagion proceeding from human miasmata.* It did arise from human excretions to be sure; but only in consequence of a conversion of them to poison by chemical action going on among their particles, as in any other inanimate matter: and vascular living action, by which contagion is formed, had nothing to do in the business. It might be said, and the hypothesis of contagion requires it to be said, that this contagion was imported from Ireland! But there is neither truth nor reason in this assertion. There is no contagion in the case; and if there was, it was not taken on board in bulk at Newry, Belfast or Londonderry. The poison which excited these fevers was engendered on board the ship, in this as in other instances, from their accumulated and putrefying excretions. The same matters which render shirts, drawers and stockings *disagreeable* to the wearer after two or three days, will render them *pestilential* after five or six weeks close and incessant application to the skin. And the same is true of bedding. The process which a washerwoman employs to cleanse linen *after three days* wearing, will cleanse it after being worn *a month and a half.* And the two cases differ but *in the degree of nastiness and infection.* And the process which a chambermaid uses to purify the floors, furniture and walls of a house, will

purify the decks, equipage and planks of a ship. *Both houses and ships are human habitations,* and become foul in a similar way. There is no mystery in the transaction, except among professors, legislators, philosophers and physicians. The plain understanding or common experience of female labourers has undeniably proved, that the foulness of clothes and houses is to be removed by soap, ley and lime.

It is happy for mankind when philosophy travels the path of common experience. Mr. BAYLEY, the health-officer of the port of New-York, has, this season, as on several former occasions, set a noble and praise-worthy example of adherence to this *good old method* of removing foul and offensive matter, and its concomitant septic poison, from the bodies and clothing of the sick. The mode he adopted in the case of the Irish emigrants was this, which, after confirmation year after year, we publish, with pride and pleasure, to the whole medical, commercial and political world, for their imitation. He caused the sick, after landing, immediately to be distributed or separated from each other as widely as the circumstances would allow, that their pestilential exhalations might be diluted, and wafted off. He ordered their nasty clothing and bedding to be carried away from their persons, and that part of both which was too poisonous, ragged and rotten to be worth the cleaning, to be burned or thrown into the Bay. He directed the bodies of the sick to be purified by careful ablution and scrubbing with a *solution of soap* in water; and even the heads of some of them to be shaven. After these things were done, the sick were furnished with clean clothing and bedding from the public store. The walls of the hospital were repeatedly *white-washed with lime,* and the floors and utensils *scrubbed with alkaline ley of pot-ash.* So offensive and intolerable were many of these languishing creatures, that they were accommodated under large tents, for the benefit of more complete airing. And it was remarked that the ground on which the tents were pitched grew too unsafe, in a few days, to be dwelt upon any longer, and the tents were removed, and erected on fresh portions of earth. In such cases the envenomed and deserted spot was regularly sprinkled over with *lime.* The health-officer, knowing that hard or bar-soap was made of *soda,* and contained, withal, as manufactured in New-York, a large quantity of turpentine, which only added to its weight, without increasing its virtue, procured for the use of the wash-house a stronger soap, made of the more powerful alkali, *pot-ash,* combined with just enough

of animal fat to lessen its causticity so as to bear handling. With this very efficacious soap, and not with the common mixture of turpentine, slush and soda, in the shops, were the remaining clothes cleansed and alkalized.

The consequence of this management was, that as soon as these regulations could be carried into effect, the pestilential vapours were dispersed through the surrounding atmosphere—a vivifying air was admitted into the lungs—the pestilential matter adhering to the bodies and clothes was alkalized and overcome, and poisonous effluvia issued from them no longer. And whatever infection might have been communicated to the floors and walls was instantly neutralized by the *ley and lime* with which they were charged. Thus the venom was gradually subdued, and the virulence of this plague in a few days perfectly died away.

It is worthy of particular remark, in this as in other cases of similar distempers among us, that of the medical attendants and nurses who fell sick, not a single instance occurred of the communication of the distemper from them to second persons. They were poisoned themselves by septic acid gas; but the disease occasioned thereby, like the disease caused by carbonic acid gas, was found to be not specifically communicable.—And it is further worthy of being remembered, that emigrants from Ireland, landing immediately in the city, instead of being detained at the Marine Hospital, filled New-York with death and terror in 1795. The benevolent and philosophical gentlemen of Ireland would be worthily employed in preventing these calamities, if possible, among their countrymen, and thereby relieving the United States from such shocking scenes.

INFORMATION CONCERNING HYDROPHOBIA.

Besides the case of this terrible disease drawn up by Dr. Physick (see 1st page of our present number), and the discussion of several controverted questions relative to it, by Dr. Mease (p. 50), we have several other articles of intelligence to communicate. The rabies among dogs, in the city of New-York, has, within a few months, been unusually prevalent. In March, 1801, there was an alarm among the inhabitants, occasioned by mad dogs, as was said, running through the streets, and biting other dogs, swine and men. Several were pursued and killed. During the month of July there have occurred several instances of hydrophobia terminating fatally, in consequence of the bites inflicted in March. In the latter

part of June and the beginning of July, the alarm from mad dogs, which had for a time subsided, was renewed, and several more rabid animals of this species were destroyed. The Common-Council of New-York, anxious for the quiet and safety of the inhabitants, judged it necessary to restrain the dogs with which the city abounded, and passed the following ordinance

"*To prevent the going at large of Dogs in the City of New-York.*

"Be it ordained by the Mayor, Aldermen and Commonalty of the city of New-York, in Common-Council convened, on the 13th day of July, 1801, that no dog shall go at large, in any street or road in this city, nor in any other place in this city where people pass or resort to, between the fifteenth day of July instant, and the first day of November next. And if any dog shall be found going at large, contrary to this law, the owner or possessor of such dog shall forfeit and pay as a fine *five dollars*. And further, that it shall be lawful for any person to kill any dog which shall be found going at large."

Unfortunately it happens that prevention is almost all that can be done effectually against this violent and intractable disorder. Many facts, indeed, are known concerning it. But as many more remain to be known, we communicate the following pieces of information to our readers, with the hope that they may contribute somewhat towards the right understanding of so intricate a subject.

The analogy between hydrophobia and yellow fever is strongly evinced by the following case, in which black-vomiting came on toward the fatal close of the distemper.

Case of Hydrophobia, communicated by S. Borrowe, M. D. of New-York.

"On the evening of the 11th of April, 1801, I was requested to attend a son of Col. B. Swartwout, a boy of nearly thirteen years old, who, half an hour before, had been bitten in the left fore-arm by a dog supposed to be mad. I immediately employed ablution, and continued it for more than a quarter of an hour; after which I dressed the wound with strong mercurial ointment, and directed the arm to be freely rubbed with it. Every fourth hour he took calomel and opium, together with wine and generous diet. In a few days a ptyalism was produced, which continued for more than two weeks.

Lunar caustic was frequently applied, which, with the common poultice, kept the wound open for better than a month. As the dog was not known to be mad, and the boy had not had any unfavourable symptoms, he was now permitted to discontinue the preventative plan, except wine and cordial diet, which he continued, though not in such great quantities.

" He appeared now to be in perfect health, and remained in that state until the third day of July in the afternoon, when I was again requested to make him a visit. He complained of considerable pain in the left arm and shoulder, somewhat similar to rheumatism; said he had passed several restless nights, and that he was very costive. I directed the pained parts to be bathed with volatile alkali, and gave him a dose of pulvis purgans, which had the desired effect.

" On the 4th, early in the morning, when a bason of water was brought to him for the purpose of washing, he directed it to be removed, as it made him uneasy to look at it; he, however, attempted to wash himself, but on putting his hands into the water, discovered great alarm, and left it with horror. He was then offered some common tea at the breakfast table, which he found great difficulty in swallowing. At ten this morning I found him labouring under all the symptoms of distinctly marked hydrophobia. The part where the wound was received, which had been long since healed, was now of a darker colour than before; his countenance was remarkably pallid; the pulses were small, and intermittent; his skin rather below the natural temperature: the pupils were somewhat dilated, attended with some little confusion of intellect. He complained of the air being extremely unpleasant to him when the door of the room was opened: the light also gave him uneasiness—light-coloured objects were particularly disagreeable to him; looking at which, he said, made him sigh.

" Dr. Post was requested to visit the patient at eleven, at which time we ordered a blistering-plaister to be applied to his throat, and one to that part of the arm where the wound had been inflicted. He took two grains of calomel and one of opium every fourth hour, together with bark, ginger, and cloves; had ten grains of calomel applied to his gums every second hour; took some animal food, and drank freely of wine. At 8 in the evening his blisters had acted powerfully; his pulses were stronger, and regular; he could drink with more ease: his intellect was more clear, and he discovered less horror at the sight of fluids.

"Dr. Tillary saw him, for the first, this evening. His medicines were continued.—He slept but little.

"5th. At nine in the morning the hydrophobia was much increased. On offering him any fluid he would scream out aloud, hide his head under the clothes, and then attempt to jump out of bed. Although he complained of being extremely thirsty and hungry, he could neither swallow liquids nor solids. Whenever he attempted it, particularly fluids, the muscles of the throat and face were most violently convulsed, and he appeared as if he would immediately suffocate. If a particle of the saliva, which he was constantly throwing out, touched the surface of his body, or he saw it, his spasms were renewed. At one o'clock we requested Drs. Miller and Hosack to visit the patient. His symptoms were now somewhat abated. The same tonic and stimulant plan of treatment was advised to be pursued: in addition to which warm brandy was applied to the region of the stomach and abdomen.

"6th. The symptoms continued the same, except the delirium, which was considerably increased. We directed him to take thirty drops of the tincture of cantharides every hour. This was continued through the day without producing any sensible effect. In the course of this night he was seized with great uneasiness at his stomach, and threw up considerable quantities of dark-coloured matter.—Little or no sleep this night.

"7th. At six this morning he refused every kind of nourishment. His delirium was greatly increased, and strength much exhausted. He had now the black-vomit, accompanied with a constant discharge of saliva.—Twelve o'clock at night he died.

"8th. At nine this morning I opened the body, in presence of Drs. Post, Miller, and Tillary. The intestines were much inflated. The smaller contained a considerable quantity of black matter, similar to that which he threw up the preceding day. The stomach was collapsed and empty, except a small quantity of dark flaky matter which adhered to the villous coat. The greater part of the internal surface of the stomach appeared to be much inflamed; and one spot, near the cardia, had the appearance of blood effused beneath the villous coat."

Case of Hydrophobia, communicated by John R. B. Rodgers, M. D. Professor of Midwifery and of Clinical Practice in Columbia College.

"J. Opie, a boy of thirteen years of age, was, on the first of April, 1801, bitten by a dog (supposed to be rabid) on the

upper part of the nose and inner angle of the left eye. He was, on the afternoon of that day, sent to a person in New-Jersey, who was said to possess a remedy preventive of hydrophobia. By him he was treated, had some internal remedies administered, and the wound dressed, but with what particular application is not known. In a short time (less than a fortnight) the sore was healed, and the lad apparently in perfect health. He continued so till Friday, the 10th of July, when, in the evening, he complained of being feverish, and, on Saturday, of pain in the head. He had a large dose of castor-oil given him by his sister, which operated briskly, and relieved him much. On the evening of the same day he complained of some difficulty of swallowing fluids.

"On Sunday, the 12th, in the morning, I was first called to see him, and found him with a hot and dry skin, pulse at 110, and full, but soft; face flushed, eyes languid, and the countenance having the air of great dejection. He was sitting up; complained of a dull pain in the head, but no affection of the stomach, or sense of oppression there. Having been told that he had shown symptoms of hydrophobia the evening before, I offered him some water in a tumbler. He took it with one hand, and put it to his mouth with some reluctance. He then seized the vessel with both hands eagerly, and, making a considerable effort, swallowed about one gill. He said he did not want to drink, for it 'choaked him,' and, as he expressed himself, 'took away his breath.' I had no doubt of the disease, nor any of the termination of it; for I knew no remedy which could be relied upon. The family were apprised of his situation. And, in a few hours afterwards, I visited him again with my friend Dr. Miller.

"Having seen, in a vol. of the London Medical Review and Magazine, an account of the successful use of alkalis and opium in some cases of tetanus, and believing in the analogy of the two diseases, and in the utter inefficacy of any medicine hitherto employed for this dreadful disease when idiopathic, we were induced to pursue the plan which had been asserted to succeed in tetanus. For this purpose he took ten grains of salt of tartar every two hours, in one ounce of water, and one grain of opium at the same interval, alternately. He was put into a tepid bath at about 90 deg. with about ℔ij. of pot-ash, dissolved in as much water as just covered his whole body. The bath was advised of such a temperature as to be below the heat of his body, and to be repeated every three hours. In the evening, at seven o'clock, his pulse was 100. He com-

plained of being heated. The opium was omitted; bowels had been restrained by the opium. He was advised to have his throat and breast rubbed with a solution of camphor in olive oil, in the proportion of ʒss. of the former, to ℔j. of the latter: this to be done when he came from the bath.

"13th, A. M. Pulse quickened to 118. Bath had frequently been used in the night, and the alkaline solution diligently given. His difficulty of swallowing fluids increased; complained of an uneasy sensation when the bed-clothes were suddenly raised, or a white handkerchief thrown over his face. On showing him a mirror, he viewed it without any repugnance. This plan was pursued through this day. In the evening the pulse was 120. He constantly expressed satisfaction from the tepid bath.

"14th, 7 o'clock A. M. Pulse 144: heat then increased: more uneasy and restless: difficulty of swallowing greater. A blister was applied to the throat. His head was directed to be shaved, and washed with iced water for some time, and then covered with a large blister.—Seven o'clock P. M. Pulse very quick (150): skin growing cold. The alkaline course had been as steadily used as before. Blister to the throat had drawn well: but the directions with respect to the head had not been attended to. This evening he became frantic, though readily restrained from doing harm. After about five hours he was calm, yet delirious; and, continuing in this state, expired at four o'clock in the morning of the 15th. His skin became yellow after death, with many livid spots interspersed.

"On such a melancholy case I have little to say, for I know but little. The alkaline treatment, like all others that have gone before, has failed. Opium was not long continued, as it increased his heat.—We may conclude the contemplation of such a case with the words of Linnæus:

> 'Heu mihi! tot mortes homini, quot membra, malisque
> 'Tot sumus infecti, Mors ut Medicina putetur.'

Connected with the opinions herein under consideration, we insert Dr. Richard Pearson's letter to Dr. Mitchill, dated London, February 14, 1801.

"Sir,

"In a letter with which I was favoured last year, Dr. Rush informed me he had taken a totally new view of the disease termed hydrophobia, on which I published a small tract,*

* "Entitled, 'The Arguments in favour of an Inflammatory Diathesis in Hydrophobia considered.' London. 1798."

about two years ago. I was led to offer some remarks on the nature and treatment of this dreadful malady, in consequence of a fatal case which occurred at the hospital in Birmingham, where I then practised, but from whence I have since removed to the metropolis.

"The few remarks relative to this subject which Dr. Rush sent in the above-mentioned letter, made me very desirous of seeing the fifth volume of his Inquiries and Observations, to which he referred me. I have not yet been able to procure this book; but in the second volume of your Medical Repository I have had the pleasure to see an extract from the said work.

"I readily admit Dr. Rush's opinion of the near alliance of hydrophobia to the class of malignant fevers; and I think that the canine rabies might be not unaptly denominated *typhus hydrophobicus.* But while I agree with Dr. Rush on this pathological point, I must beg leave to differ from him entirely in regard to the treatment he prescribes when the disease is formed. His principal remedy is venesection. Now, if it be admitted that there is a real affinity between rabies canina and typhus, copious bleeding will surely be rejected on theoretical grounds; but, putting theory (as we ought) out of the question, fatal experience compels us to reject it. In my tract I have shown that the fullest trial of the lancet has been repeatedly, but vainly, made in every stage of the disease. In some of the unsuccessful cases, the quantity of blood drawn was astonishingly great. It cannot, therefore, be said that the remedy failed because it was not employed to a sufficient extent.

"In regard to the other remedies, such as purging *(moderately)*, glysters and sweating, I believe they are what most practitioners will assent to. Instead of blisters I have recommended caustics to the arms and thighs. They produce a more powerful and a more permanent action on the surface of the body, and, at the same time, are unattended by the peculiarly distressing irritation on the urinary passages which the cantharides occasion—an irritation carefully to be avoided in this disorder. As to the external application of cold water, the hydrophobic convulsions are so remarkably aggravated *by that, or any other fluid coming in contact with the body*, that I am persuaded it ought not to be used; yet I have no doubt that a reduced temperature, by lessening the excessive irritability, would have a beneficial effect.

"Attending to the state of the stomach (as denoted by the patient's feeling, and as detected after death), I have recom-

mended strong aromatics (and particularly capsicum) wine, ipecacuanha (in small doses, as a diaphoretic), and, lastly, the Peruvian bark. And the more I reflect on the nature and phenomena of rabies canina, the more I am satisfied of the propriety of this plan of treatment.

"I am, Sir, with great respect, yours,

"RICHARD PEARSON, M. D.

"*P. S.* Dr. Fothergill has lately published some observations on hydrophobia in the Memoirs of the Bath Agricultural Society, wherein he endeavours to prove it to be a species of angina. There is no doubt that it is sometimes accompanied by sore-throat, like other malignant fevers; but I have adduced numerous facts which evince that it is an accidental, and by no means a constant or essential symptom. Dr. Fothergill's observations were written, though not published (the papers lying long in the hands of the society), before my pamphlet appeared."

The kindred nature of hydrophobia and malignant fever is not a mere speculative notion. Practical observation confirms their similitude. This will appear by a case which occurred, in the autumn of 1798, in the New-York Hospital, under Dr. Mitchill's eye and prescription, wherein hydrophobic symptoms supervened the symptoms of yellow fever.

Nicholas Wager, a farmer from the town of Troy, aged 56 years, after having been unwell several days with the complaint of the season, was brought from his lodgings near Coenties slip, to the hospital, on the 25th of August, 1798. He had undergone some evacuations. At the time of his admission his tongue was dusky, and pulse moderately full: he had a rending pain across the forehead, and great distress at the heart. By degrees, however, he fell into that heavy and torpid state which so often accompanied the distemper. A variety of food and drink of a nourishing kind had been prescribed for him. On the 28th he became disinclined to take them; the whole quantity swallowed during the day amounting to no more than a few ounces of panada. The aversion to fluids increased until the next morning. The following extract from the hospital record exhibits his situation a little before he died: "He has continued very much agitated during the night, and an aversion to fluids came on. This is so remarkable as to be manifestly hydrophobic; for, on offering him drink at this moment, there was evidently an abhorrence of it; and on putting some lemonade, with a spoon, into his mouth, the pharynx was convulsed, and spasms extended thence along his arms:

symptoms of opisthotonos took place immediately after, and on attempting to raise his body the whole muscles of the back were rigid; while raised up the spasms of the pharynx were renewed, by attempting to give him some warm wine, which he was unable to swallow. His extremities are now cold, his pulse not perceptible at the wrist, and he appears under the spasms and tremors of departing life." He soon after expired.

IMPROVEMENTS IN THE NEW-YORK HOSPITAL.

By an arrangement made with the national government, this excellent asylum, in addition to its former plan, is become a marine hospital, and seamen who are not objects for the establishment for the sick on Staten-Island, are now freely admitted into it. This very much enlarges the field of medical and chirurgical practice, and affords advantages to students proportionally extensive.

An hospital had been established, in 1798, for the relief of poor pregnant women, as was announced in our vol. iii. p. 64; and it was incorporated by law at the next sessions of the Legislature. The institution was for some time in operation; but, on trial, it became evident to the managers that the good done was not commensurate to the expense. They therefore very prudently and humanely determined to assign their property in trust to the governors of the New-York hospital, on condition of having a lying-in ward established there. This has been agreed to, and a certain number of patients are regularly received. The lying-in ward is a part of the medical establishment of the hospital, though more particularly subservient to the purposes of the Professor of Midwifery in Columbia College. By this arrangement between the two establishments, the New-York Hospital has become a very instructive school of obstetrical practice.

The governors are attentive to the augmentation of the library, which is already a very valuable collection of ancient as well as modern books, on the various branches of the medical profession. Students are admitted to this upon easy and accommodating terms.

The surrounding ground has lately been inclosed with an handsome brick wall, and laid out in a style at once adapted to the airing and exercise of the sick, and to the raising of eatable and medicinal vegetables for the household. Besides these, it is now in agitation to adapt the hospital more extensively to the accommodation, management and cure of lunatics.

Inspection of pot-ash.

The great variety of forms and other qualities American pot-ash puts on, has rendered it necessary to subject it by law to an inspector, who shall judge whether it is merchantable or not. As to its *colour*, pot-ash is brown, red, black, yellow, white, cream-coloured, green and blue, with various stripes and mixtures of these. Its consistence is as various, being flinty, grained, unctuous, crumbly, frothy, scaly, honey-combed and crystallized, in different curious connections. Its adulterations are scarcely less numerous; for it is found to be blended with quick-lime, silicious gravel, granite, carbonate of lime, sulphate of lime, and muriate of soda; and the most of these are added for the purposes of deception by the manufacturers. The nice inspection of this alkali is not a very easy nor a very certain business. The man of science, who only has read elementary books, talks of pot-ash as a thing perfectly understood. But his ideas apply to the alkali in its pure state, and have very little reference to it, mixed and adulterated as it actually exists in the market. However, a less scrupulous examination suffices for the common purposes of trade.—As it appears to be a compound, there is another source of variety in pot-ash than the foreign ingredients mingled with it. And this is the different proportions of the constituent materials of the alkali itself, and their different degrees of attractive force; making various modifications of the salt independent of actual impurity. There is reason, too, to believe, that in some of its forms pot-ash associates with oxygen; for many samples of it, when examined by the inspectors, have *an acid flavour*, and *impart sourness to the organ of taste:* and this peculiarity is very familiar to them. These sorts of pot-ash are always of a very faulty quality. In short, this is a substance concerning which we have got a great deal yet to learn; and New-York, where it can be seen in all its forms during the manufacturing operation, and while it is undergoing inspection immediately after it is sent to market, is one of the best places for observing these things.

Thriftiness of the Sicilian wheat.

The committee of gentlemen appointed to cultivate the Sicilian wheat, mentioned in Med. Rep. vol. iii. p. 420, have distributed parcels of it to many parts of America. And it is pleasing to relate, that the accounts received from several cultivators are very favourable. The quantities raised, as yet, are too small to be carried to mill and made into flour; but it

is sufficiently ascertained that the plants will thrive and ripen their grain in our climate, and that the soil of the United States will bring it to perfection as well as that which surrounds the base of Mount-Ætna.

VOYAGES TO SOUTHERN GEORGIA.

This antarctic island, which is not classed by geographers with any of the eastern quarters of the globe, belongs properly to America. Though too cold and inhospitable for the permanent residence of man, it is much frequented by ships from New-York, and other parts of the United States, for the skins of the seals and the oil of the sea elephants which abound there. The harpoon has been thrown with such destructive success in every part of the Atlantic, that whales have become more scarce, and voyages for that species of game are less profitable than formerly. This has turned the attention of the whalemen to other prey; and Southern Georgia is now visited for the purpose of killing the seals and sea elephants which live and breed there in prodigious numbers, and have not, until lately, been much pursued or hunted by man. The havoc made among them must, notwithstanding their prolific powers, greatly thin their numbers, and diminish the species; and what expedient will be afterwards resorted to for oil is uncertain.

MEDICAL COMMENCEMENT AT PHILADELPHIA.

At a public commencement, held in the hall of the University of Pennsylvania, on Monday, the 8th of June, degrees of Doctor of Medicine were conferred on the following gentlemen, who presented and defended their respective Inaugural Dissertations.

Henry Wilson Lockette, of Virginia, on the Warm Bath.

Nathaniel Chapman, of Virginia, on the Canine State of Fever.

William Wyatt Bibb, of Georgia, an Inquiry into the Modus Operandi of Medicines upon the Human Body; to which are added some observations on the action of the lymphatics.

James Tongue, of Maryland, on the three following subjects: 1. An attempt to prove that Lues Venerea was not introduced into Europe from America. 2. An experimental inquiry into the Modus Operandi of Mercury, in curing the Lues Venerea. 3. Experimental proofs that the Lues Venerea and Gonorrhœa are two distinct forms of disease.

Samuel Gartley, of Philadelphia, on Bubonocele.

Thomas Semmes, of Maryland, on the effects of Lead, comprising a few experiments on Saccharum Saturni, and its application in the cure of diseases.

Jarvis Roebuck, of the island of St. Croix, experiments and observations on the Bile.

Benjamin G. Hodge, of the West-Indies, experiments and observations on the Absorption of Active Medicines into the Circulation.

William Stephen Jacobs, of Brabant, experiments and observations on Urinary and Intestinal Calculi.

William Brown, of Pennsylvania, on Uterine Hæmorrhage.

SKELETON OF THE UNKNOWN QUADRUPED.

The large fossil bones of which we gave some account in our vol. iv. p. 211, have been purchased by Mr. Peale, of Philadelphia. On putting them together, he finds they already amount to a considerable part of a skeleton. The proprietor intends to continue digging in the spot where they were found to obtain the remainder, and there is every reason to believe his attempt will be successful. From actual measurement, it now is ascertained that the animal to whom they belonged was between twelve and fifteen feet high. A complete skeleton of this enormous creature will be a grand addition to Mr. Peale's Museum, and tend to refute the opinion of some speculative philosophers, that the animals of the western continent are of a puny or diminutive growth. These bones, when put together, will prove that New-York has once supported the largest quadruped of which there is any description in zoology.

ANOTHER ETHIOPIAN TURNING TO A WHITE MAN.

In a letter to the editors, dated Lichfield (Connecticut), June 28, 1801, Mr. A. Catlin relates another instance of a negro gradually losing his blackness without disease.—"Pompey, a very healthy negro, of about twenty-six years of age, about two years since discovered on his right thigh a small white spot, which, from that to the present time, has been constantly increasing to the size of nearly a half-crown piece; while there have appeared, on other parts of his body, other spots, to the number of twelve, of different sizes, but all constantly and gradually enlarging. In several of the spots the margin is perfectly defined, from a distinct line between the clear white and the natural colour. In others there are circumscribed rings of a dun appearance, the external mar-

gin of which is very regular. I have the fullest belief that a very few years will complete the total change."

This correspondent replies, in answer to the query made in our vol. iv. p. 427, that the venomous saliva there mentioned was a morbid secretion, inasmuch as quicksilver had not been administered to him in any form whatever.

DATURA STRAMONIUM.

The following instance of the efficacy of datura stramonium was communicated by A. J. De Rosset, M. D. of Wilmington (North-Carolina), to Dr. Miller.

"A gentleman, aged thirty-six years, of a very athletic make, who had been in habits of intemperance, with respect to the use of spirituous liquors, for some years, and had, in consequence thereof, been subject to occasional attacks of convulsions, was seized, about the 8th or 9th of May, with a fever, accompanied with frequent bilious vomitings, which so far yielded to the use of the usual remedies, that he was able, though weak, to attend to the affairs of his farm by the 12th. On the 15th of the same month I was requested to visit him, on account of a species of mental derangement, with which he had been attacked the day before. The account given me was, that he had not, during the last fortnight, indulged in any excesses: that, about dinner time, on the 14th, after having slept badly the night before, he often imagined that he saw people coming towards his house, and would frequently mistake one object for another, while, at the same time, he seemed sensible of these perceptions being erroneous: he nevertheless ate a hearty dinner; after which his symptoms increased, and, by evening, were so violent that he stripped himself naked, and ran into the woods, showing every mark of the utmost terror; nor would he suffer any person to approach him. About twelve o'clock, the night being extremely dark, his attendants lost sight of him at the edge of a swamp into which he ran. In the morning he was found, very much bruised and torn by the bushes and briars, and conveyed to his habitation. In this situation I saw him. He spoke incessantly of the persons from whom he thought he had received ill treatment. His eyes were quite suffused with blood; the countenance very pale; pulse small, though not much quickened. With some difficulty he was prevailed on to go to bed. The decoction of the seeds of the *datura stramonium*, prepared as recommended by Dr. King, in the second volume of your Repository, was prescribed, and repeated

every ten or twelve minutes, till he fell asleep, which was when about fourteen drachms had been taken. He slept for several hours, and awaked much refreshed: his mind, however, continued in a small degree deranged, but was quite restored by a continuance of the medicine at longer intervals. He is now in the full enjoyment of all the faculties of his mind.—No other medicine was given."

FURTHER EXPERIMENTS ON THE PUS OF ULCERS, SHOWING IT TO BE FREQUENTLY AN ACIDIFIABLE BASIS; *by Mr. Richard L. Walker, House-Surgeon of the New-York Hospital, addressed to Dr. Mitchill, June* 22, 1801.

"SIR,

"I observe that the experiments on the *acidity* of the pus discharged from foul and ill-conditioned ulcers, made by Messrs. H. C. Kunze and Brouwer, in the New-York Hospital, last November, have been published in London. They are contained in vol. vi. p. 69, 70, of the Medical Review and Magazine; but the account is not near so ample as in the Medical Repository, vol. iv. p. 297, 299. At the end of the account given of these very interesting and instructive experiments, is published a memorandum of some trials made by Mr. Blair and Dr. Ingenhousz, a few years ago, in the Lock-Hospital, on syphilitic matter, with a different result. These gentlemen concluded that the discharges on which they made experiments were of an *alkaline* quality, because the litmus-paper which they applied to the venereal pus *turned of a bluish hue.* (Med. Rep. vol. iv. p. 71.)

"It strikes me there must certainly be some mistake in the recital of these experiments, or in the experiments themselves; for I never heard before that an alkali would turn any delicate vegetable colour *to a blue or bluish.* On the contrary, it commonly changes vegetable blues and purples to a *green*, as acids turn them to a *red.* The natural colour of litmus is bluish; and in the experiments referred to by Mr. Blair, the matter applied having neither an acid nor an alkaline quality, which is often the case, the paper was taken out without having undergone any change of colour at all. The inference, therefore, from their experiments, is simply this, that, in the trials made, the *litmus-paper gave no evidence of acidity.* This is doubtless very true; for it is well known to us here, that pus is not *always* acid, but becomes so only in *certain*

circumstances, and these *connected with an unhealthy aspect of the ulcer*.

"Considering Mr. Blair's experiments as not warranting the conclusion he draws from them, and, when rightly understood, actually confirming, and not contradicting, those published by Mr. Kunze, I had at first meditated to end my observations here; but as further experiments were called for within a few days, I have made further experiments upon some of our surgical patients, and these prove, as plainly as the former, that *pus grows sour* within a few hours after secretion on the surfaces of malignant ulcers, and that this appears in *scrophula* as well as in *lues* and *cancer*.

"In the experiments litmus-paper was employed as the test; and this was very convertible to red, by the action of acetous, sulphuric and other acids. To prevent mistakes, I guarded against the possibility of acidity from lunar caustic, red precipitate, saccharum saturni, corrosive sublimate, and every thing else that occurred to me, and dressed the ulcers with dry lint during the experiments. I satisfied myself, too, that blood was not the cause of the red colour acquired by the litmus.

"My first experiment was on the pus of a venereal ulcer on the hand, of two months continuance. The patient had been three weeks under treatment in the surgeon's ward, and the sore was getting well. Yet a piece of the litmus-paper, put in at ten in the morning, and suffered to remain until half past five in the afternoon, was considerably reddened.

"I next tried an old ill-conditioned ulcer with caries of the tibia. It had been under treatment for a month, and was healing. A piece of paper put upon the fleshy part at ten A. M. and taken out at half past five P. M. was evidently turned red, though a shade more faint than the preceding.

"Then a scrophulous ulcer on the arm was tried, which discharged a great quantity of pus from a sinus. It was of fourteen months duration, and not in a very favourable condition. Paper inserted at ten in the forenoon, and removed at half past five in the afternoon, was changed red, and sensibly deeper than in the last experiment.

"Afterwards a trial was made on a syphilitic ulcer upon a woman's leg, of seven months standing, and growing clean. Litmus paper, put in at half past eight in the morning, and examined at noon, was evidently changed to a red. In all these instances the blue colour of the litmus was restored by dipping the papers in a solution of carbonate of pot-ash.

"A man came into the hospital with a mortified penis, occasioned by venereal virus, first showing itself in the form of a small chancre not larger than the head of a pin, and having spread, within a few days, over a large portion of the prepuce. This ulcer was in a most foul, offensive and gangrenous condition. Litmus paper put into it was changed to a red in three hours and an half, and the colour was brighter than in any of the former experiments.

"In a case of *common* sore-shin, of eight years standing, a paper put into the ulcer, and soaked in its pus for several hours, underwent no change at all.

"The *acidity* of pus, mentioned by EVERARD HOME, may be opposed to the *alkalinity* supposed to be detected in it by ADAIR CRAWFORD.

"Indeed, Sir, the results of these and other experiments were so steady and similar, that I need not trouble you with further details. The pus of certain ulcers appears to me to be an acidifiable basis, and to attract oxygen from the atmosphere. It therefore takes some time to become acid, though this is commonly effected in the course of a few hours. What modification of the septic acid this will turn out to be, I must leave to your consideration. I suppose it must be septic acid, because, when concentrated and plentiful, it corrodes the flesh, stirs up hectic fever in the individual, and, when raised into gas, from numerous ulcerated surfaces (which are so many local sources), by the heat of the living body (96 or 98 Fahrenheit), breeds the infection of jail, ship and hospital fevers, to be communicated to others within its reach.

"It is remarkable how near the truth some great men may come, and not quite reach it. Sir JOHN PRINGLE, I observe, found that an *austere acid* was produced by mingling putrid animal substances with bread and other vegetables. (Paper v.) He was satisfied that the fæces humanæ often contain an *acid*. (Paper vii.) He delivers it as his conviction, that there is a *latent acid in the composition of all animal bodies*. (Exp. 47.) In foul ulcers, and other sores, where the serum is left to stagnate long, the matter, he says, is always acrimonious. And he has proved sufficiently (Paper i.) that putrid substances are not alkaline, and that alkalies are powerful antiseptics. Yet the Baronet could not draw the conclusion from all these discoveries, *that putrid or septic exhalations were acid*, nor *that the pus of foul ulcers was an acid*. But we have done it for him, and shown that these,

like other effluvia from nastiness, are the exciting causes of malignant and pestilential distempers.

"I think it not necessary to say more on the subject: for my own part I stand convinced, and I most sincerely hope the above-mentioned facts will tend to clear up the doubts of the incredulous, and universally to establish your doctrine."

AN ACID IN THE ALIMENTARY CANAL DURING CONFLUENT SMALL-POX.

Dr. Vaughan, in a letter dated Wilmington, May 9, 1801, writes thus to Dr. Mitchill:

"Having met with a case of confluent small-pox, in which the acid nature of the disease was attested, I hasten to inform you of the fact, as it tends to generalize your doctrine of pestilential acidity.

"When the eruption took place in this case, the concomitant symptoms of malignity rendered the use of bark, blisters, &c. essential. The alvine evacuations were black and granulated, resembling dry coffee-grounds, had an acid smell, and excoriated the verge of the anus. These circumstances induced me to test the fæces with alkali; and, when they were put into a solution of pot-ash, an effervescence took place, and the black colour was changed to a brown, and the tenacity of the matter restored. It must be observed that the child's food consisted of mucilaginous substances, as sago, calf's feet jelly, &c. After the fæcal matter had remained some hours in the alkaline solution, I added a little nitrous acid to the mixture, and the *decomposition* restored the black and granulated appearance of the fæces.

"The nature of the contents of the intestines was now ascertained with precision, and I omitted the bark, and gave the carbonate of pot-ash with unremitting attention. The effects of the alkali were soon manifested in the alteration of the discharges, and I am persuaded its beneficial influence was not confined to the alimentary canal. The pock gradually assumed a more favourable aspect, and progressed toward the distinct form of the disease. At the usual period of turning they were full and regular, and, by opening and evacuating the matter, the secondary form was much mitigated.

"From the experience of this case, I shall hereafter have much more reliance on alkalies than on the Peruvian bark, in confluent small-pox; and I have no doubt but the disease may be completely transformed by the early and liberal use of alkalies."

UNDESCRIBED LITTLE QUADRUPED OF GEORGIA.

Josiah Meigs, Esq. President of the University of Georgia, has forwarded to Dr. Mitchill a dried preparation of an American animal, which seems to be a non-descript. The letter which accompanied the specimen is dated Augusta, July 13, 1801, and states that, "for the space of about one hundred miles, between Savannah and Augusta, the land on each side of the road is almost covered by the heaps of loose earth raised by it."—The creature is of the order of the *Glires*. He is a *mus*, and belongs to the division of the *criceti*, or *hamsters;* and is thus described by John Milledge, Esq. Representative in Congress from the State of Georgia.

"One of the little animals that burrows in the pine land, only known in Georgia, was caught by Mr. Stephen Pierce, living midway between Savannah and Augusta. Its body is of the length and thickness of a common-sized rat, and of the same colour: the head between that of a rat and mole, with small whiskers and short snout: the tail without hair, but shorter than that of a rat: the fore feet like those of a mole, with nails near an inch long: the hind feet like those of a rat, but the nails not of the same length, each foot having five claws: very sparkling small eyes: also short ears: teeth like a squirrel, and full as long. On both sides of the jaw, externally, are sacks or wallets, where it deposits its food, and each will contain as much as can be put in a large table-spoon. Little or no fur, and the hair of the length of a wood-rat. The whole face of the pine country is covered with little mounds made by this animal, of the circumference of a peck, and from six to eight inches high. It is by no means active, but remarkably fierce. No common wooden place of confinement can hold it long, as it gnaws its way out. It lives entirely on roots, and is very fond of the sweet potatoe, and often proves injurious to the planter by getting under his stacks. It appears to move nearer the surface in the spring and fall than at any other season. It is surprising, that though the work of this creature is seen throughout the country, in the region of the long-leaf pine, and in that region only, yet such is its skill in burrowing, and acuteness of hearing, that there is no animal in all our State so seldom caught or seen."

This account, which does not wholly correspond with the character of the *Mus Cricetus Germanicus*, leads to the belief of its being a new species. But in order to be quite satisfied of this, it is necessary to be more particularly acquainted with its manners and way of life.

COPAL-VARNISH MADE WITH ETHER.

Mr. Carendeffez, after many experiments on the manner of dissolving copal, has at length discovered that the following process is successful in preparing a varnish from it:—Take an ounce of good *sulphuric* ether (taking care that it is not *sulphureous*, in which case it must be re-distilled from some metallic oxyd, as manganese, minium, or the like), and an ounce of gum copal in gross powder; mix them together in a well-stopped bottle; then place them in a moderate sand-heat or water-bath, and the copal will be completely dissolved. In a letter to Dr. Mitchill on the subject, Mr. Carendeffez observes, that though this is not a very cheap solution of copal, yet the varnish is very fine and brilliant; and the process is so easy as to be repeated by any person, though of very moderate skill.

MALIGNANT FEVER IN IRELAND.

It appears by the following article from Waterford, that a local fever has made its appearance in that place:

"Rev. Sir, *Waterford, June* 18, 1801.

"The visitors of the sick poor waited on me for the purpose of giving it as their opinion, that the greatest cause of the fever which is now so very prevalent in this city arises from the putrefied holes adjoining the houses of those infected with that very great malady, which opinion does perfectly agree with my own sentiments.

"I therefore have to request that you will please to impress, as fully as you can, upon the minds of your congregation, that the very little advantage they can obtain from the small quantity of dung which can be gathered out of those holes, can in no wise compensate for the risk they run, by having such filthy stagnated pools close to their houses, which, in many instances, proved mortal to themselves, and a very great injury to the public in general.

"I am, Rev. Sir, &c. &c.

"Samuel King, *Mayor*."

AN AMERICAN SOLDIER'S RATION.

A ration is to consist of eighteen ounces of bread or flour, or, when neither can be obtained, of one quart of rice, or one and a half pound of sifted or boulted Indian meal—one pound and a quarter of fresh beef, or one pound of salted beef, or three quarters of a pound of salted pork; and, when

fresh meat is issued, salt at the rate of two quarts for every hundred rations; soap at the rate of four pounds, and candles at the rate of a pound and an half, for every hundred rations. The proposals will extend to the supply of rum, whiskey, or other ardent spirits, at the rate of half a gill per ration, and vinegar at the rate of two quarts for every hundred rations. The price of the several component parts of the ration, as well as of substitutes and alternatives, must be specified.

[*Secretary at War's Proposals.*

ON THE DECOMPOSITION OF WATER.

To the Editors of the Medical Repository.

"*Philadelphia, July* 4, 1801.

"GENTLEMEN,

"In August, 1799, I sent you some observations concerning the non-action of the concentrated nitric acid on silver, copper and tin, which were published in the Medical Repository, vol. iii. p. 207, and have since been reprinted in Tilloch's Philosophical Magazine. In the same volume of the Repository, p. 415, the following remark occurs, under the head of *Medical and Philosophical News;* and appears to have been suggested by, and is a denial of, what I advanced on this subject.

'The more nearly the nitric acid approaches to purity, the more powerfully Mr. Carendeffez finds it acted upon by silver, copper and tin, notwithstanding its strength and concentration, provided its water of liquidity be not too much diminished.'

"I have since frequently repeated these experiments, and still adhere to my former opinion, which I consider as just.

"If nitric acid, prepared from the common oil of vitriol and nitre of the shops, can be kept, for weeks or months, over silver, copper and tin, without affecting these metals, and if they are acted upon in a most violent manner *instantly* when water is added to it, certainly we ought to conclude that the acid will not affect them, and that water is necessary to its action.

"The phenomena which accompany the solution of each of these metals, in the acid, are considerably different.

"When the diluted acid is added to tin, a most violent commotion ensues, accompanied with a discharge of common nitrous and dephlogisticated nitrous air, and the formation of the nitrates of tin and ammoniac, and a large quantity of the white oxyd of tin.

"This experiment affords us a strong and elegant proof in favour of the decomposition of water, the corner stone of the new theory of chemistry.

"The hydrogen of the water unites to part of the azote of a portion of the nitric acid, and generates ammoniac, which joins to some of the nitric acid, and makes nitrate of ammoniac. A second part of the azote of the acid lays hold of part of the oxygen of the acid and water, and produces common nitrous air. The remainder of the azote of the acid seizes upon another portion of the oxygen of the water and acid, which gives rise to the dephlogisticated nitrous air. A third part of the oxygen of the acid and water joins to the tin, converts it into a white calx, a little of which is dissolved by a small quantity of the acid, which makes the nitrate of tin.

"If water is not essential to the action of the nitric acid on tin, in what manner is the ammoniac produced, or from whence comes the hydrogen which enters into the composition of this substance? It is necessary to add lime, pot-ash or soda to the solution of tin in nitric acid, to disengage the alkaline gas.

"I have the honour to be, Gentlemen,
"With the highest respect,
"Yours sincerely,
"JAMES WOODHOUSE."

SINGULAR FACTS RELATIVE TO A CASE OF BLINDNESS.

Mr. Peter Foissin, student of Physic at Charleston, South-Carolina, in a letter to the Editors of the Medical Repository, dated 6th May, 1801, has transmitted the following case.

"Philip, a negro man, aged twenty-five years, received a blow with a whip in the right eye, which had the effect of inducing a complete cataract. Either from sympathy, effusion, or the excessive action of the rays of light upon the left eye, it in a short time became affected with amaurosis, to the utter extinction of sight. His other senses are much improved, particularly that of feeling, which is so nice that he can, without hesitation, ascertain when he approaches any body, animate or inanimate, by a peculiar sensation, the acuteness of which is so exquisite as to enable him to say with precision what part of his body is approximated to the object. Whether this *sensation* is the effect of attraction, or the obstructed passage of air, I declare myself incompetent to decide; how-

ever, I rather suppose it to be the effect of attraction, from the description he has given of the sense. His venereal appetite, which, prior to his blindness, was moderate, is now so much increased, that three women, with whom he is now connected, are scarcely sufficient to satiate his inordinate desire for the exercise of this function.—His head is an almost perfect directory. He goes to market, or any other part of the city, without difficulty, and with surprising expedition; and such is the wonderful effect that habit has wrought upon him, that he declares, was he restored to sight, it would be impossible for him to pursue immediately his daily avocations with as much precision and facility as he does at present."

DISCOVERY OF VACCINE POX AMONG AMERICAN COWS.

We are happy to find that our suggestion to physicians in the United States, to inquire for the vaccine disease among the cows of this country (see our vol. iv. p. 322), has produced the desired effect. The coincidence of the following articles of information, derived from different respectable sources, and, so far as we know, without communication with one another, seems to place the fact beyond the reach of doubt. We state them as they severally came to our hands.

Dr. William Buel, of Sheffield, in the State of Massachusetts, in a letter to Dr. Miller, dated 20th May, 1801, describes the case of a lad, in his neighbourhood, affected with an eruption on the face and hands, greatly resembling vaccine pustules, to whom he was called on the 10th of the preceding month. With matter taken from these pustules he inoculated several persons, and observed the disease to pursue a similar course, and to exhibit similar phenomena, to a case of actual vaccine pox then under his care. And after the termination of this new disease, he tested it, as usual, by variolous inoculation, with the same happy result as in other cases of vaccine pox. Upon inquiry he found the lad had sometimes milked cows, that these cows had been observed to have sore teats, and that the hands and face of the lad had been prepared for the reception of the disease by having been previously scratched in play with his companions.

Dr. Elisha North, of Goshen, in the State of Connecticut, who has bestowed much attention on the vaccine disease, has found it among the cows of that neighbourhood, and inoculated it with success. In a letter of the 25th of May last, to Dr. Miller, he announces the discovery, and that the inoculation

of the disease had then been tried, in a number of instances, with complete effect.

Dr. Joseph Trowbridge, of Danbury, in the State of Connecticut, in a letter to Dr. Mitchill, dated 6th of July, 1801, communicates a similar discovery which he has made among the cows of that place. At that time he had inoculated three persons of his own family, and the disease produced by the inoculation exhibited all the appearances of the genuine vaccine pox.

Since our last number, the vaccine disease, apparently genuine, has been introduced and propagated in this city. The present season of the year, which, according to popular prejudice, is deemed unfavourable to inoculation, has hitherto prevented the disease from being employed frequently or generally; and the usual banishment of the small-pox at this time, renders it more difficult to apply it as a test of the genuineness of the few cases of vaccine pox which have yet occurred. We hope to be able to offer a more satisfactory account of the progress of the disease in our next number.

SUBSTITUTE FOR COLUMBO.

The stem and root of the plant, called, by L'Heretier, xanthoriza simplicissima, or apiifolia, has been found, by Professor Woodhouse, to afford a beautiful yellow dye. It is a native of the Carolinas; and the specimens sent us have a bitter, aromatic, and somewhat mucilaginous taste. Dr. Woodhouse affirms that they possess medicinal powers not materially unlike those of columbo-root. This plant may, therefore, be considered a valuable addition to the American Materia Medica.

MEDICAL SCHOOL AT NEW-YORK.

The Medical Lectures in Columbia College begin annually on the second Monday of November; and the arrangement of the courses continues to be as follows:

Natural History and Chemistry by Professor S. L. Mitchill.
Anatomy and Surgery by Wright Post, Esq.
Midwifery and Clinical Medicine by J. R. B. Rodgers, M. D.
Botany and Materia Medica by David Hosack, M. D.
Theory and Practice of Physic by William Hamersley, M. D.

FOREIGN.

OXALIC ACID FROM SCROPHULOUS GLANDS.

IN Hufeland's Journal the following fact is mentioned, which may deserve the attention of our medical readers. An anatomical preparation of indurated glands, from a very scrophulous subject, having been put into spirit of wine, it was found, some time after, to be incrusted with saline crystals. To prove that they really came from the preparation, and not from the spirit, other spirit was added, of known purity, but with the same effect. By chemical analysis, the crystals were found to be the oxalic acid. This circumstance may support the opinion of an acid change of the humours in this disease, and may suggest an explanation of the benefit derived from absorbent earths and alkalies.

[*Lond. Month. Mag. May*, 1801.

ON THE MEDICAL USE OF PHOSPHORUS.

Phosphorus, whose use was introduced into medicine about fifty years ago, is known as the most powerful exciting remedy which we possess. Several physicians have tried it, with more or less success, in all cases where a high degree of nervous debility prevails; and accordingly, in nervous fevers, palsies, impotentia virilis, epilepsies, &c. also in arthritis nodosa et atonica, it has proved very efficacious; and it likewise deserves to be used in cases of persons poisoned with lead or arsenic. There exists, at least, an instance of a person, who, having been given poison in Italy (probably aqua toffana), became quite emaciated, his nails and hair fell off spontaneously, and his life was only saved by phosphorus. Its effects are, at the same time, in a considerable degree diuretic and diaphoretic.

Experience has, however, shown that the application of this remedy requires the utmost caution; and it may sometimes prove very dangerous, if proper care is not taken, as it has been observed either to cause a vehement inflammation in the stomach and bowels, accompanied with very burning pains in the regio hypochondriaca, and often terminating in death, or by producing indurations, or scirrhus of the stomach, which occasion chronic cardialgies, indigestions, an habitual vomition of whatever is taken, emaciation, and hectic death. These ill consequences are, in a great measure, owing to the mode in which it is administered, either by giving it in substance or in

too great a dose, as, in the first case particularly, the minutest particle of it may, by adhering to the stomach, produce an inflammation, or at least an induration.

As for the dose, it has been observed that it never must exceed two grains in 24 hours, and a burning pain or sensation was always perceived whenever it was given in a greater quantity; but generally one grain in 24 hours will be sufficient to produce the desired effects.

The form in which it is to be exhibited ought to possess the quality of containing the phosphorus quite dissolved, and, at the same time, of obtunding its too dangerous irritation upon the stomach. The forms hitherto used were a mixture with a conserve, which is of all others the most improper, because the remedy is applied here in substance, and may, of course, easily bring on the above mentioned symptoms; a solution of it in oil, which, though otherwise very proper, is too disagreeable to take; a solution in ether, or naphtha vitrioli, in which the phosphorus entirely dissolves; but by this combination, its heating and irritating qualities are exceedingly increased; and as only eight grains of phosphorus are soluble in one ounce of the ether, 120 drops must be taken only to bring one grain of it into the body, which in most cases would be too dangerous. However, this naphtha phosphorata may be of great benefit or use in a very high degree of nervous debility, combined with a total want of sensation.

The following form of giving phosphorus internally will therefore be the most proper, on account of containing it dissolved and equally divided throughout, and having it sufficiently involved in mucilage to prevent any ill consequences from a local irritation of the stomach, even in very sensible constitutions. The phosphorus is rubbed with sweet almonds, or a sufficient quantity of gum arabic, to make an emulsion, and, by an addition of spiritus nitri dulcis, or liquor anodynus, the taste and smell of the phosphorus is rendered less disagreeable.

℞ *Phosphor. urinæ gr. ii. subigatur longa trituratione cum mucilagine gum. arabici q. s. ut fiat cum aquæ fontan unc. vj. emulsio, cui adde syrup. althaeæ unc. j. liquor. anodyn. miner. Hoffmann. gutt. xxx.* D. S. *omni bihorio cochlear. sumendum aut plus. pro re nata.* In this way a very efficacious solution will be obtained, which shines in the dark, and is agreeable enough to be taken. *(From Hufeland's Practical Journal, vol.* vii. *No.* 3. 1799).

APPENDIX.

ARTICLE I.

[*The late Dr.* JACOB OGDEN's *method of treating the Malignant Sore Throat Distemper has been frequently mentioned among Practitioners of Medicine: but the original pieces published by that gentleman have become very scarce. Having been fortunate enough to find them in two pamphlets printed about twenty-five years ago, we have thought them worthy of republication. And we offer them in the form in which they first appeared, which is that of letters addressed to Mr.* HUGH GAINE, *of New-York.*]

LETTER I.

Jamaica (Long-Island), Oct. 28, 1769.

SIR,

BEING moved with compassion for the distressed condition of the people in Boston and Oxford, occasioned by the fatal effects of the malignant sore throat distemper, I take the liberty to offer to the consideration of those gentlemen of the medical profession who may not be well acquainted with the disorder, the following method of cure, which, by the blessing of God, I have had the most happy experience of for near twenty years past; but being confined within the common limits of an Almanack, shall be as concise as the nature of the case will admit of; referring the reader, for the definition and diagnostic symptoms, to the several treatises wrote by Drs. Fothergill, Huxham, and Douglass; and shall only deliver briefly my method of cure.

Alexipharmic and sudorific medicines have long and deservedly been in great esteem as the basis of a radical cure of this disease; and, by writers upon the subject, have been universally recommended, particularly by the above-mentioned gentlemen, whose labours deserve the highest commendations. But too often were those means found inadequate to the malignancy of the disorder, as well as many other remedies represented as real specifics. Without doubt it has been observed, with grief, by others as well as myself, that, notwithstanding the seasonable and plentiful use of those reputed specifics, the distemper

generally proved fatal: Wherefore, in a time of great mortality, about twenty years ago, in and near this town, I tried the effects of mercury, joined with alexipharmics and astringents, by adding a considerable dose of *mercurius dulcis* to the *Edinburgh* or *Venice* treacle, which succeeded even beyond my expectations; but those treacles not fully answering my end, I substituted the following, which I have, without much variation, continued in the use of to this time.

"Take of the powders of seneka rattle-snake-root two ounces; of contrayerva roots one ounce and a half; of Virginian snake-roots, the roots of aromatic calamus and wild valerian, the tops of rue, and the flowers of English camomile, each one ounce; of cinnamon myrrh, resin of guaiacum, British saffron, balsam capivi, prepared crabs eyes, and *Armenian* bole, each half an ounce; of ginger and opium each two drachms; of *Madeira* wine enough to dissolve the opium; and of clarified honey thrice the weight of all the powders."

Neither time nor room permit me to make any further remarks upon the above treacle, than that I have abridged the quantity of opium ordered in the others (which I found too predominate in most cases, especially when given to children), and added the seneka rattle-snake-roots, perhaps the most powerful *antiseptic* vegetable in the whole *Materia Medica*, manifested, to mention no more, by its almost immediate cure of the bite of the rattle-snake.

The doses which I have generally given, and would recommend, are, to a child of a year old, fifteen grains of the above treacle, and two or three grains of the *mercurius dulcis:* to one of six or eight years old, half a drachm, or two scruples of the treacle, and four or five grains of the mercury: to a grown person, a drachm and a half, or two drachms of the treacle, and six or eight grains of the mercury, repeated every twelve, sixteen, twenty, or twenty-four hours, as the urgency of the symptoms may indicate. And in case the symptoms are very threatening, or the patient should have been ill several days, without proper means having been administered, an intermediate pill of the mercury may be given occasionally; thus continuing until the sloughs are entirely separated from the tonsils, &c. drinking strong sage tea, acidulated with vinegar, for common drink, observing to keep the patient warm, by avoiding the cold air, drink, &c. not only until the disorder seems to be entirely subdued, but a considerable time after, lest a sudden, and often a fatal, relapse should succeed. The mercury seldom purges after the first or second

dose. If a bolus should be disagreeable to the patient, the treacle may be dissolved in wine and water, or sage tea, and the mercury be given in a pill.

The above medicines will generally remove the disorder in two or three days, if given in the beginning. Often two or three doses prove sufficient; but when the symptoms are obstinate, I recommend the use of the boluses until the venom of the distemper appears to be entirely extinguished. I have more than once proceeded to the twelfth dose, besides four or five pills of mercury *per se*, containing four or five grains each. To a girl nine years of age I gave sixty-two grains of mercury, in conjunction with the treacle, in about twelve or fourteen days. She happily recovered, although she had the *hoarse cough* several days during her illness.

When *exanthemata* or eruptions appear, the doses may be diminished, but repeated at least twice in twenty-four hours.

Ulcers behind the ears, in the groin, or in any other part, discharging a thin corroding ichor, I advise by no means to be suppressed, especially by red precipitate, or any other topical application that has a power of constipating the efflux; for it is almost certain that a retrocession of the *virus* will speedily have fatal effects. But cataplasms of onions boiled in milk, thickened with the crumb of wheat bread, adding a few grains of *British* saffron, may be applied with benefit, and renewed three or four times a day, until the acrimony of the juices is corrected by internal medicines, and the ulcer will, in time, cicatrize spontaneously.

When the solids are uncommonly relaxed, and a seeming dissolution of the fluids, attended with thin, watery sweats or hæmorrhages, I recommend the plentiful use of the Peruvian bark, with the spirit or elixir of vitriol. The bark will also prove very beneficial where the fever intermits; but when the fever is continual, runs high, and the pulse full, especially if attended with a difficult or laborious respiration, I never find any advantage gained by the bark.

I am not unacquainted with the surmises of some, that since the known *genius* of the disorder dissolves the *crasis* or texture of the blood, so as often to cause fatal hæmorrhages, such quantities of an active mercurial preparation as I have recommended would increase the danger. But long experience has taught me the contrary; for the sooner the dissolving acrimony in the blood is mitigated, the less may the danger of hæmorrhages be apprehended.

L. of C.

Notwithstanding the incredible quantity of mercury a person may take in this disorder, when obstinate, without any apparent indications of a ptyalism, more than what is commonly a concomitant symptom of the disease itself, yet, when the case has been rather favourable, the effects of the mercury will sometimes appear, by causing the gums, especially of the *molares*, to tumify, attended with a white or yellowish slough on the inside of the cheek; the * cheeks and *fauces* being also tumified externally. However, these effects always prognosticate a favourable issue; therefore I never suppress the activity of the mercury suddenly, but check it by the most gentle means—such as the flowers of sulphur in small doses with manna, but recommend no other purgatives.

When the fever runs high I generally give less of the treacle, or neglect it wholly, and give a pill of mercury every evening and morning till the fever is moderated; then the treacle may be given as above directed. I have frequently known two or three pills in the beginning, with the assistance of no other medicine but sage tea, or an infusion of the contrayerva, to give entire relief.

I have now finished what I conceived necessary to write upon this subject; but if any gentleman of the medical profession desires any further explications relative thereto, I shall always be ready to give him all the satisfaction in my power. And if the communicating to the public my method of practice, in the cure of this terrible and truly pestilential distemper, should be the means of saving the lives of any of my fellow creatures, of relieving the pungent distresses of tender parents, anxious for the lives of their dear offspring, my end will be answered, and a compensation made infinitely more than adequate to the little pains I have taken. All the reward I ask, is, in case the method of cure above recommended should be blessed with the same success in Boston, Oxford, or in any other places, as it has been when prosecuted by myself, that I may have the pleasure of being informed of it by a few lines from some grateful and benevolent gentleman, directed to the public's humble servant,

JACOB OGDEN.

* I have been the more particular here, lest those not much conversant with the disorder might mistake the effects of the medicine for the disease.

LETTER II.

Jamaica (Long-Island), Sept. 14, 1774.

SIR,

AGREEABLE to your request, I have, in the following lines, noted the principal symptoms of the malignant sore throat, that parents and others who have the care of children may know when to apply for relief; being more necessary in this than in most other diseases; since the latent malignity has too often been unsuspected before the last and generally fatal symptom, the *hoarse cough*, has alarmed the family.

The first are commonly heaviness, restlessness, weakness, sometimes feverishness, watery eyes, giddiness, a more than common discharge of a watery saliva or spittle from the mouth, and a thin limpid matter from the nose. All these symptoms are not always conspicuous in every patient; in some so slight as not to be noticed by the family in children, nor scarcely by the adult patient himself. Soon after, and sometimes coeval with the above symptoms, an inflammation with a soreness is observed in the throat; a relaxation of the palate, which will appear much longer and thicker than common; a difficulty of swallowing; a swelling of one or both tonsils, commonly called the almonds of the ears; after which a small white speck or slough will appear on one or both tonsils, resembling cream or a piece of white fustian. Sometimes three, four, or more specks will be on one side, but soon unite. In most the breath has a disagreeable smell; and if the patient had not before, he now begins to have a fever, generally attended with a low quick pulse; the sloughs increase until the whole tonsils, the space between them, behind and under the palate, and sometimes the nostrils, are covered. Soon after, a cough seizes the patient, which, although at first little different from the common, in a few hours becomes remarkably hallow and hoarse; and the countenance appears bloated, with a bluish or livid colour about the mouth—too frequently a mortal presage. These are the common symptoms; but the most certain criterion is the slough in the throat; unless when it begins behind the ears, in the groins, or in some other part previously sore. Wherefore it is highly expedient, that those who have the care of children should frequently examine their throats when this disease is epidemical or suspected, that relief may be applied for in season.

It has been observed, "that weakly persons are more sub-

ject to this disorder than the strong and healthy; women more than men; girls more than boys, and of these the most tender and delicate."

Sometimes, especially near the equinoxes, the disease is attended with eruptions, commonly called a *rash.* In this species, the symptoms, previous to the eruptions, are generally more violent, often attended with a burning fever, great anxiety, a diarrhœa or flux, delirium, &c. until the eruptions are fully out. This is not so dangerous as the former, especially if the efflorescence or eruptions appear before the third day.

I take this opportunity to answer the purport of sundry letters on this subject, which, by reason of a multiplicity of business, I could not comply with before; and shall add some necessary remarks omitted in my former method of cure.

Where a greater flux of saliva than common, or a sharp irritating *ichor* discharges from the mouth and nares—a too sudden or premature retrocession of the eruptions, and when they are partial, or advance slowly, blisters are beneficial. But where the fever runs high, attended with a dry skin, a putridity in the blood, or hæmorrhages, they will be detrimental.

Although drastic purges are ever prejudicial, the body, if costive, should be kept open, and by clysters rather than laxatives.

A symptomatic diarrhœa should be checked with the greatest caution.

In the eruptive species, previous to and during the eruptions, if the fever and other symptoms are violent, diluents taken plentifully, instead of the alexipharmics heretofore recommended, will generally be of more benefit, until the fever is abated; after which the warmer medicines may be given until the sloughs are removed, as formerly directed. In most patients the sloughs disappear upon the subsiding of the eruptions, except when repelled by a diarrhœa, an improper use of purgatives, by cold, or too much heat.

When the *hoarse cough* has seized the patient, it will be necessary to increase the mercury to near double the quantity formerly ordered, e. g. instead of five grains evening and morning, four grains may be given every six hours, in conjunction with the most powerful antiseptics and sudorifics. A child of six years of age took, in the space of twelve or fourteen days, upwards of a hundred grains of *mercurius dulcis,* in this stage of the disease, with the most happy success. Oxymel of squills, often repeated, in small doses, rather as an

expectorant than emetic, when respiration is much impeded, will sometimes give great relief. Anodynes, in this last stage, should be given with great caution, if given at all.

Detergent gargarisms or injections are of service when the patient is of an age capable of using them. The air of the room where the sick lie might also, with advantage, be continually impregnated with the steam of vinegar. Sea-coal might be burnt in the winter instead of other fuel; and, in the summer, the room might be fumigated with myrrh, rosin and sulphur, strewed on burning coals, often in a day. These fumes, if diligently persisted in, would, it is more than probable, not only much benefit the sick, but be the best means of preventing the infection from spreading in the family.

Notwithstanding, after taking large quantities of mercury, no effects of it are visible after the patient's recovery. It will be absolutely necessary to order a dose of flowers of sulphur, once or twice a day, several days, lest some unfavourable accident should ensue.

J. OGDEN.

ARTICLE II.

Some Account of the PESTILENTIAL FEVER *which lately prevailed at Cadiz, in Spain.*

IN our vol. iv. p. 320, we gave the best account of this disease in Spain then in our power, with a promise of further details on some future occasion, which we now are happy to perform.

We are enabled to present to our readers some authentic information on this subject, by the kindness of John Morton, Esq. Consul for the United States at the Havannah, whose zeal for the public service induced him to put into our hands a "Supplement to the Madrid Gazette," dated Tuesday, 28th October, 1800. In this newspaper we find an account of that malignant disease under the following title:

"*A description of the epidemic disease which began in the city of Cadiz—its origin and propagation—the different symptoms and effects of it—and the method of cure adopted, according to the observations and experience suggested at repeated meetings and consultations of the physicians in that*

city; published by order of the government, for the instruction of the public, and particularly for the notice and regulation of the practitioners of medicine and surgery, to the end, that whenever, hereafter, they discover such symptoms or indications among the sick committed to their charge, they may immediately make the communication to the magistracy or board of health, for the purpose of separating such sick persons from the community, subjecting them to quarantine, and preventing the spread of contagion."

Our limits allow us only to offer an abstract of most parts of this curious paper. After introductory and general remarks, the writer distributes the contents of the paper under the following heads: History of the Disease—Symptoms—Prognosis—Method of Treatment—Conclusion.

In the *history of the disease*, notice is taken of the usual healthfulness of Cadiz, of its former opulence from the extent of its trade, of the injuries and inconveniences suffered by the present war, and of the depression of mind which the inhabitants have experienced in consequence of their distresses. The winter preceding this epidemic had been long and wet; the rainy season had been prolonged till the month of May; the summer was intensely hot, insomuch that, from the middle of July, Fahrenheit's thermometer rose to 85 degrees; an easterly wind succeeding, lasted for the space of forty days, which being a very hot wind in that country, subjected the inhabitants to extreme heat, and affected them with sweatings so profuse that they could enjoy no comfort but in bathing; at the beginning of August no diseases appeared except some inflammatory ones, such as quinsies, ardent fevers, &c.—About the 8th of the same month many bilious fevers began to appear, but they were of short duration, and yielded, in plethoric habits, to a slight bleeding, and to the usual subacid and cooling treatment. After the tenth and fifteenth of August, many people, in the quarter of Santa Maria, and in the eastern parts of the city, were observed to be attacked with what appeared to be a low nervous fever, attended with great prostration of strength, and other characteristic symptoms of malignity. And soon afterwards the disease was propagated to the other parts of the city: the physicians called the attention of the magistracy to the object: consultations were held, and means adopted to prevent the further spreading of the mischief.

Symptoms.—This disease came on with chilliness, pains in the head, particularly in the temples and orbits of the eyes—

pain in the back, frequency of pulse, burning heat of the skin, bilious vomitings, bilious stools, foul tongue, great prostration of strength, and uneasiness of the upper orifice of the stomach. More or fewer of these symptoms appeared in all cases of the disease, whether mild or malignant. In the more malignant forms of the disease, the following symptoms supervened: starting of the tendons, alienation of mind, hiccough, convulsions, bleeding from the nose, vomiting of blood, bloody and dark-coloured stools, yellow skin, petechiæ, and, finally, black-vomiting, similar to that which is endemic, at certain seasons of the year, at Vera Cruz, Honduras, &c.* The most fatal appearances were coldness of the extremities, feebleness of the eye-lids, vomiting of matter like coffee-grounds, hiccough, convulsions and coma. Many who had yellowness of the skin and petechiæ, bleedings from the nose and anus, happily recovered, if vomiting and hiccough did not supervene.

Prognosis.—In cases where the fever went off about the third day, without any appearances of vomiting, favourable expectations might be indulged; but when exacerbations returned on the fourth or fifth day, accompanied with the abovementioned symptoms, and especially where prostration of strength and coldness of the extremities also took place, a fatal termination might be expected.

Method of treatment.—As soon as the epidemic appeared, the magistracy, with the advice of the physicians, employed every practicable measure to purify the atmosphere. Privies were cleansed; the dead were ordered to be buried out of the city; it was enjoined upon house-keepers to preserve cleanliness in every respect, and to ventilate their apartments; smoke of green pine was dispersed through the streets and lanes; houses were sprinkled with vinegar and aromatic herbs, and filled with the vapours of them; gunpowder was flashed in different places; and many other means were tried for the same purpose.

Persons seized with the disease were treated with mild diaphoretics, nitrous preparations, cream of tartar, neutral salts, vegetable acids, injections, and cataplasms to the feet. If by

* In order more completely to satisfy our readers of the exactness of our translation, we here subjoin the words of the original: "——los subsultos tendinosos, la enagenacion de mente, el singulto, los movimientos convulsivos, la hemorragia de nárices, la vomicion sanguinolenta por la boca, la melena, deyecciones de sangre, la ictericia, las petechias, y ultimamente el vomito atrabiliario, á que han querido llamar *vomito prieto, semejante al que es endemico en ciertas estaciones del ano en Vera Cruz, Honduras, &c.*"

such slight remedies perspiration was excited, and the bowels moved, the fever was sometimes favourably terminated on the third day; after which some gentle cathartic, such as tamarinds, manna or Glauber's salt, followed by the Peruvian bark in tincture for a few days, often completed the cure. This was the treatment of the milder cases. In cases of greater violence, antimonial emetics were ordered, and soon afterwards the Peruvian bark in substance, opiates, dulcified spirits of nitre, injections composed of tamarinds in a decoction of bark, &c. When vomiting supervened, so as to prevent the reception of the bark, it was given in clyster with antimonial wine, &c. To allay vomiting and hiccough, an oleo-saccharum, with camphor, was given in large doses; and especially to relieve the hiccough, the same oleo-saccharum, with the addition of lemon-juice, was found very useful. Such as were affected with vomiting of blood, bleeding from the nose, or melæna, took the vitriolic acid, properly diluted, and often repeated. In cases of coma, caustics were applied to the legs and to the back of the neck. In a word, the remedies chiefly relied upon were mild emetics and the Peruvian bark; the former of which, it is mentioned, sometimes operated to an injurious excess, in cases of great irritability, so as to require gentle eccoprotics to be substituted—and the latter, in substance, sometimes produced such violent colic pains that it became necessary to use the tincture instead of the powder, aided by ether, opium, or the anodyne liquor of Hoffman.

The opinions of the physicians of Cadiz, concerning the origin, nature and causes of this malignant disease, are next presented, as the conclusion of the paper, in the form of distinct propositions; and as they constitute the most curious part of the publication, we offer it to our readers, as far as possible, in their own words.

"Proposition 1st.—Miasmata and contagion, like cold, lessen the energy of the nervous system; hence they operate more powerfully when the sensorium is in a state of debility; but in proportion to the vigour of the system is their noxious influence counteracted. The constitution of most of our inhabitants, debilitated by constant mental depression, and, in some instances, by dissipation, demonstrated the truth of this position.

"Prop. 2d.—Different states of the system predispose men to the action of contagion, which, being of a septic quality, operates like a ferment, inclines the fluids to a putrid fermentation, and creates a predisposition which makes men more sub-

ject to epidemic diseases; hence such diseases are most prevalent in hospitals, ships, jails, &c.

"Prop. 3d.—Habit, or assimilation to climate, may destroy the effects of contagion; hence the typhus icteroides, or the yellow fever of the West-Indies, so mortal to Europeans, seldom attacks the natives. This fact leads to an important, but doubtful discussion. Our malignant disease having invaded a single family in a quarter of the city chiefly frequented by privateersmen and seamen, both foreigners and natives, and thence spreading among all such as had intercourse with them, and proceeding from the inhabitants of the above-mentioned to the other quarters of the city, the opinion seemed to be countenanced, that the exciting cause of this epidemic, originating as above stated, was communicated by contagion. Positive data are wanting to decide this question. But if this opinion may be controverted by the specious objection, that, in other instances, persons just recovering from the yellow fever of Philadelphia or Carolina, have arrived here without any such destructive consequences; still it might be conceived that the absence of those causes which predispose to the disease would sufficiently account for the inactivity of the contagion.

"It has been remarked by a sagacious observer, that the heat and constitution of the air through the late summer in Cadiz were similar to such as are annually experienced in the West-Indies. This confirms our doctrine, and is proved by the fact, that persons lately arrived from those islands, owing to their being accustomed to like seasons, did not suffer an attack of our epidemic; and also by the remarkable exemption of those who have been long resident in this country, as well as, on the other hand, by the liableness of persons from Canada and some other countries to the disease.

"Prop. 4.—Diseases which attack many different persons at the same time, can only originate from causes common to all; such as air and aliments. In like manner, scanty diet, famine, and rainy seasons, as well as bad food, frequently produce epidemics more fatal among the poor than among the rich. This cannot be said of the present epidemic, since, *cæteris paribus*, it has been equally mortal to both classes. The qualities of the air likewise demand attention: the sensible qualities are heat, cold, moisture, and dryness; the insensible qualities are such as arise from substances dissolved in the air, and which remain suspended in the form of vapours. These vapours are capable of producing the same effects in various subjects. They are generally known under the appellation of mi-

asmata and contagion, and constitute the efficient cause of the disease, modified, or, more properly, augmented in force, by the diversity of the sensible qualities of heat and moisture, which increase the tendency to putrefaction.

"Prop. 5.—Writers of the first celebrity admit the existence of a common contagion, which consists either of marshy vapours or of human effluvia. The action of these causes may be augmented by several circumstances; either by increasing the acrimony of the bile, and thereby producing cholera and contagious dysenteries, or by disposing the fluids to putrescency. Hence putrescency, petechiæ, yellowness of the skin, or the various species of typhus, mild or malignant, petechial or icteroid—at one time directly attacking the vital principle, and producing synochus, the second species of slow, nervous fever—at another time becoming suddenly malignant, as was the case in many fatal instances of our epidemic, from the direct impression of carbonic acid gas volatilizing the blood, like a stroke of lightning destroying at once the principle of life, and arresting motion and sensation in the origin of the nerves.

"Prop. 6th.—Dr. Piquer has always carefully observed the passions of the mind, as powerful causes of fever, in the same manner as we have attended to the effects of air as well as of aliment. It cannot be denied that violent passions may have this operation; they assail the nervous system with dreadful rapidity, though doubts may arise whether their power is more exerted in the brain or heart. Hence the want of vigour from this cause, augmented by the operation of contagion still more sedative, brings on sudden death; as is unfortunately too often verified in the countries where pestilential diseases prevail. Happily we have not experienced such direful effects, since in none of our patients have pestilential buboes, carbuncles, or anthraces been observed. Though some have been affected with phlegmonous tumours of gangrenous termination, others with erysipelatous vesications of a similar tendency, and others again with parotids; yet they have not been of that class which belongs to the true plague, such as are described by Chicoineau, of Marseilles, and Schemoeluwitz, of Moscow.

"Prop. 7th.—Concluding from what has been above stated, that a damp and warm constisution of the atmosphere, of long continuance, followed by a high degree of heat, have been the most universal causes of our epidemic, which, by exalting and rendering more virulent the insensible qualities of the air, assailed the nervous system, already debilitated by the influence of passions of the mind acting as predisposing causes;

it is not to be wondered at, considering the symptoms above described, that our disease should obtain the character of a putrid and malignant epidemic fever; nor is it strange that, if at first some of these cases assumed the appearances of synochus, they quickly degenerated into putrid and nervous fevers, propagating themselves from one another, and becoming contagious, in some by means of the original cause which produced them, in others by the effluvia of the sick; that they operated with most force upon such as were found already debilitated, or upon those who, though constitutionally robust, were overwhelmed with terror and dismay, and that in such cases they became suddenly malignant, and produced the greatest degree of havock.

"Finally, taking for granted the putrescency of the mass of blood, the acrimony of the bile, the attack upon the nervous system, and the inirritability of the living solid, it might have been expected that the following symptoms would ensue: those of putrescency, such as bleeding from the nose, vomiting of blood, dark coloured stools, petechiæ, colliquative sweats, serous diarrhœas—those of bilious acrimony, such as porraceous and black vomiting, stools of the same appearance, yellowness of the skin—and those of a virulent attack upon the nervous system, such as anxiety and heat about the præcordia, prostration of strength, delirium, convulsions, hiccough, coma, and lethargy. Under such circumstances, the practice adopted by most of the physicians in this city appears to be proper. This treatment, which was varied according to circumstances, consisted in the use of mild diaphoretics at the beginning, or of cooling subacid remedies in the period of reaction; and, in the more violent cases, it consisted of gentle emetics, and especially in the use of Peruvian bark, to resist putrefaction and to strengthen the solids, and likewise in the use of oily and sedative remedies, such as ether in cardialgia and hiccough, and of stimulants and caustics in the state of coma and insensibility.

"Experience has ascertained that these remedies are the most to be depended upon, and that they have been attended with the best success. By the use of them many have been recovered from the borders of the grave. A regard to truth compels us to confess, and in this the other physicians in the city will agree with us, that in this epidemic (differing from any which have been seen in Europe, Asia, or America), the mortality has not been equal to the malignity. The liberal and candid inhabitants of Cadiz will also acknowledge, that al-

though their fellow-citizens have been visited by a dreadful epidemic, they have not observed in the consultations of the physicians that opposition of opinions, and that adherence to system, which is so common in other countries. They reciprocally communicated their observations, availed themselves of foreign as well as domestic experience, preserved uniformity in the method of cure, and, assisted by the zeal and energy of a Magistracy always active and vigilant, they sacrificed their ease, safety and life, as it was their duty to do, to the relief of suffering humanity. We have now the heartfelt satisfaction of seeing the epidemic nearly extinguished, the inhabitants tranquil, and breathing gratitude towards those who had devoted themselves to the preservation of their lives and the re-establishment of their health. This is the sole and the most satisfactory reward that he can seek who exposes his life for the public good, next to the inexpressible pleasure which springs from the restoration of the health of his fellow creatures, and the having been able to contribute, in part, to the discharge of that duty to his country which is imposed by nature."

Notwithstanding the want of accuracy and comprehensive views which pervades this summary of the opinions of the Physicians at Cadiz, we are enabled clearly to deduce from it some inferences, which appear to our minds to convey instruction and appropriate correction as to certain doctrines which have been held and propagated by many of the good people of the United States.

1. We learn that this Spanish disease was precisely such an one as we have lately so often experienced in different parts of our own country. A glance at the description and symptoms will remove every doubt.

2. The history of the epidemic and preceding seasons, the nature of the diseases which went before, the condition of persons who escaped, as well as of those who were most liable to this pestilence, and many other circumstances which might be mentioned, all serve to establish the local, domestic origin of the disease in question, and to prove that similar causes will every where produce similar effects. It is evident, likewise, that the physicians of Cadiz themselves incline to this opinion.

3. We find that the rumour of the derivation of this disease from the coast of Africa, and of its assuming the appearances of the plague of the Levant, which was for some time gene-

rally believed in Europe and America, is unsupported by this publication.

4. It appears that the physicians and inhabitants of Cadiz, like other Europeans similarly circumstanced, have no apprehensions of importing the yellow fever from the colonies of Spain in the West-Indies, and in North and South America, notwithstanding all the commercial intercourse which that city maintains, and has long maintained, with those sickly regions.

5. It results from the evidence of this paper, that all the fears entertained at Cadiz, and other ports of Spain, of receiving the contagion of the yellow fever from the United States, and, of consequence, that all the oppressive and injurious regulations of quarantine, imposed on the trade of our fellow-citizens, are the offspring of the notion of the importation and exportation of that disease, so warmly cherished in Philadelphia, and by a few persons elsewhere.

6. We learn from the contents of this paper, from the events which produced it, and from the public opinion of these events, the importance of forming a just estimate of quarantine, and the mode of conducting it, whether we consider it in a medical, commercial, or governmental point of view. Quarantine, stripped of the mystery and fooleries which superstition throws around it, is merely a system of cleanliness, as to vessels, crews and cargoes, enforced by law. We assert that if a vessel and crew be clean, in the popular and common sense of the word, and the cargo in a state of preservation, such vessel cannot be sickly, with respect to those diseases which it is the object of quarantine to exclude. It was by attending to this point that Capt. Cook was enabled to circumnavigate the globe without the appearance of fever or infection in his crew.

But it may, perhaps, be demanded, how is this cleanliness to be maintained? We answer (as we have repeatedly attempted to inculcate heretofore), by the means which universal experience approves, to wit, ventilation, ablution with soap and alkalies, and white-washing with lime. To these means we constantly owe the preservation of ourselves and families from the terrors and ravages of infection. If infection float in the air of our rooms, ventilation will dilute and disperse it; if it adhere to the floors, walls, cielings or furniture, water, with the aid of soap and ley, will wash it away; and, by white-washing with lime, a clean and fresh surface will cover the walls and ceilings. We are warranted, by positive facts,

to believe that all oily or mucilaginous matters, all animal or vegetable offals, adhering to floors, walls or furniture, in which infection may lodge, can be dissolved and washed away by water combined with soap and alkalies; and if the ground of lodgment be thus destroyed, can the infection remain behind? To illustrate this, we may ask, why do malignant fevers so often invade the miserable retreats of poverty, so seldom the mansions of affluence and elegance? Because the former species of dwelling is as much distinguished for filth and fœtor, as the latter for neatness and splendour. But what is the difference in the economy of those dwellings? Poverty is shut up in low, small and crowded cells, where ventilation is impossible, and where ablution is neglected. On the contrary, the foundation of decent living is laid in a process of cleanliness which suffers no interruption. The means of this cleanliness are universally air, water, soap, ley and lime. We no where find fumigation added to this catalogue.

It would be fortunate if these principles could be extended to vessels, which are no other than maritime dwellings and warehouses. A system of quarantine, organized upon this plan of cleanliness, might not only accomplish much more than it has ever yet done, but it might be abridged as to extent and duration, disincumbered of nearly all its inconvenient and oppressive restrictions, and accommodated to the safety and comfort of mariners, as well as to the activity and dispatch of mercantile speculations. Laws of quarantine may be so constructed as to render them, in their operation, bounties upon cleanliness and health, and thereby instruments of the most humane and salubrious reforms in the economy of vessels, as well as in the police of cities. The quarantine of persons and of cargoes, under such regulations, might be reduced to a smaller number of hours than it now consists of days.

Let it not be objected to these principles, that they depend upon theoretical opinions concerning the nature and constitution of pestilential matter. This practical management will remain unshaken, if every doctrine on that subject now taught should prove to be unfounded. Whatever chemical analysis may ultimately decide relative to this matter—whether it be considered acid, alkaline or neutral—this mode of purification, sanctioned by universal use, and immemorial experience of the great mass of the community, can never be abandoned.

The importance of the subject will serve, we hope, as an excuse for our frequent reiteration of these opinions.